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AN ANALYSIS OF THE HOOKWORM PROBLEM IN MISSISSIPPI*†

W. S. LEATHERS, M. D.
and
A. E. KELLER, M. D.
NASHVILLE, TENN.

INTRODUCTION

It has been approximately twenty-five years since the Rockefeller Sanitary Commission started the original investigation of hookworm in Mississippi. After the completion of the campaign in 1914, in order to continue the work which the Rockefeller Sanitary Commission started, the public health facilities were expanded in those areas in the South where the hookworm investigation had been conducted. Since that time public health activities have been greatly extended in the southern states.

Along with this movement extensive researches have been made in regard to public health, both from the administrative and scientific points of view. The scientific problems connected with hookworm were among the first to be attacked, especially since this disease was known to constitute one of the most important conditions affecting the health of a considerable portion of the population over a large area.

As a result of the investigations concerning hookworm most of the information in regard to the life cycle of the parasite, its localization in the United States in relation to soil areas and methods for the detection of hookworm larvae in the soil have also been made available.

Laboratory technics for the diagnosis of hookworm have been improved so that it is now possible to determine not only the prevalence of hookworm in any area but also to estimate the worm burden or intensity of infestation of single individuals or large groups. The quantitative methods of examination which have been developed are useful in evaluating the results of sanitation and treatment programs because it is possible with these methods to have a control examination before the initial measures are instituted.

The treatment of hookworm disease has been simplified greatly so that now such therapeutic measures are not associated with as great danger and discomfort to the patient as in the early period. The methods for the proper disposal of human excreta have also been improved and can be made available at a nominal cost. These improved measures have been effectively applied during the past decade.

In Mississippi practically the same program as outlined originally by the Rockefeller Sanitary Commission has been continued up to the present time by the State Health Department in co-operation with the physicians of the state. The investigation in Mississippi which is to be reported at this time was made in co-operation with the State Department of Health in order to determine, by the use of a quantitative method of examination, the hookworm problem as it exists at the present time and to evaluate the measures which have been applied toward the control of this disease.

PLAN OF STUDY

In order to have satisfactory data from which accurate information could be obtained in regard to the previous incidence and distribution

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of hookworm in the state, the original records of the Rockefeller Sanitary Commission were used. It was thought necessary to study only those counties in which the incidence of hookworm was 15 per cent or higher in the early investigation. On the basis of this arbitrary incidence level it was found that 52 of the 82 counties in the state fell within this limit.

In investigations of this kind it has been emphasized that the common helminths usually spread through family groups and that the family is the fundamental unit of attack in controlling such conditions. To determine this particular point in regard to hookworm, all of the specimens of feces were collected, assembled and examined according to family groups, an effort being made in each county to collect specimens from all members of each family studied. A sufficient number of specimens were obtained by community groups in each county investigated to provide a representative sampling of the rural population. While slightly more than 60 per cent of the specimens were obtained from the school age groups, this was necessary in order to obtain an accurate estimate of the situation due to the fact that the major hookworm problem involves mainly the school age groups.

The method of examination of feces used throughout this investigation was the small drop dilution egg-counting technic described by Stoll and Hausheer. By employing this technic it is possible to determine not only the incidence and distribution of hookworm in any community or county but also to estimate the intensity of infestation or worm burden of the indivíduals involved. This is a quantitative method of examination that is accepted in the United States as being the most useful in an investigation of this kind. It is especially valuable in areas where sanitation and treatment are to be instituted as it is possible to determine the results of such procedures, especially if specimens have been examined by this technic before instituting control measures.

It was necessary, however, to determine whether or not the results of the examination of specimens of feces by the dilution egg-counting technic in this study could be compared with the results obtained by the simple smear which was used during the Rockefeller Sanitary Commission investigation. In order to do this 2,412 specimens of feces from two counties in southern Mississippi were examined by both methods, one egg-count and one smear examination being made on each specimen. It was found that 42.2 per cent of the specimens were positive for hookworm by the dilution egg-counting technic and 35.1 per cent were positive by smear, giving an advantage of 7.1 per cent for the egg-counting technic. It should be stated, however, that most of the specimens which were negative by simple smear showed light infestations by egg-count. The details of this comparative examination are given very briefly but we believe the data given are sufficient to show that the results obtained by the dilution egg-counting technic in the present study are somewhat more accurate than the simple smear and therefore they can be considered dependable in making a comparison with the results obtained during the early investigation.

RESULTS

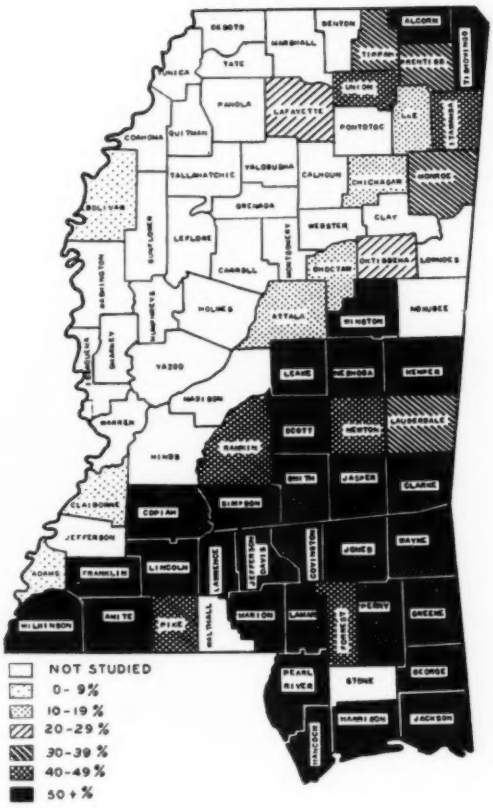
Specimens of feces were obtained from 44,380 white persons and 6,441 Negroes in 52 counties of Mississippi. These specimens were secured from 12,892 white families and approximately 1,500 Negro families in 449 rural communities, representing approximately one-half of the total white population of the state. Of the white persons examined 8,694, or 19.6 per cent, were found to have hookworm eggs in the feces. If the incidence of 19.6 per cent of hookworm found at the present time is compared with that of 53.1 per cent found in the same counties during the Rockefeller Sanitary Commission investigation (1910-1914) it is evident that there has occurred a marked reduction in the incidence of hookworm, the total reduction being 62.5 per cent.

While the presence of hookworm was demonstrated in each of the 52 counties studied, analysis of the distribution of the parasite shows that there is a marked difference in incidence in the various sections of the State. The highest incidence was found in southern Mississippi. The next highest was present in the northcentral section and the lowest prevalence was found in the Mississippi Delta region and adjacent areas. There has occurred a more marked decrease in the incidence of hookworm in the northeast and central portions of the state than

MAP 1

INCIDENCE OF HOOKWORM IN THE WHITE POPULATION OF 52 COUNTIES IN MISSISSIPPI

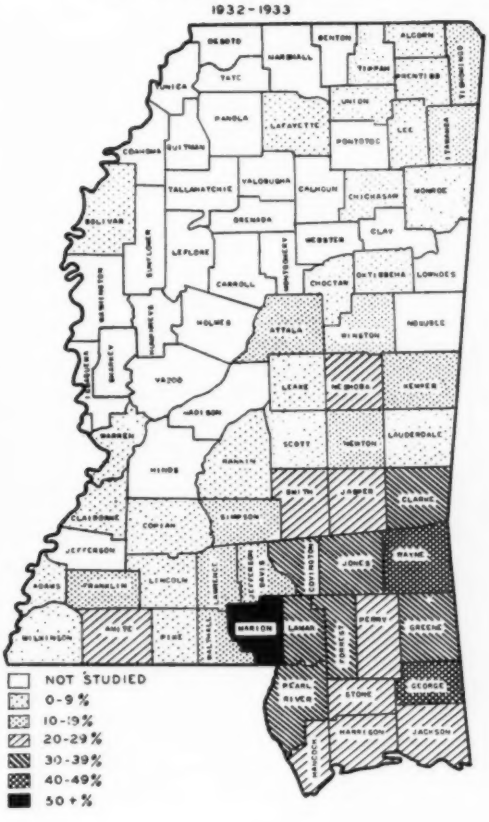
1910-1914



MAP 2

INCIDENCE OF HOOKWORM IN THE WHITE POPULATION OF 52 COUNTIES IN MISSISSIPPI

1932-1933



elsewhere. Maps 1 and 2 show the comparative incidence and distribution of hookworm in the State for the periods 1910-1914 and 1932-1933.

There has been a definite downward trend and shift in the incidence of hookworm by counties. In 49 counties for which data are available for the period 1910-1914, 30 counties had a hookworm incidence of 50 per cent or higher. Of the 52 counties in the present study only one had an incidence of 50 per cent or more, 22 an incidence of less than 10 per cent, 11 from 10 to 19 per cent, nine from 20 to 29 per cent, seven from 30 to 39 per cent, and two from 40 to 49 per cent. These data are shown in Table 1.

GRAPH I

AGE AND SEX INCIDENCE OF HOOKWORM IN THE WHITE POPULATION IN MISSISSIPPI, 1932-1933

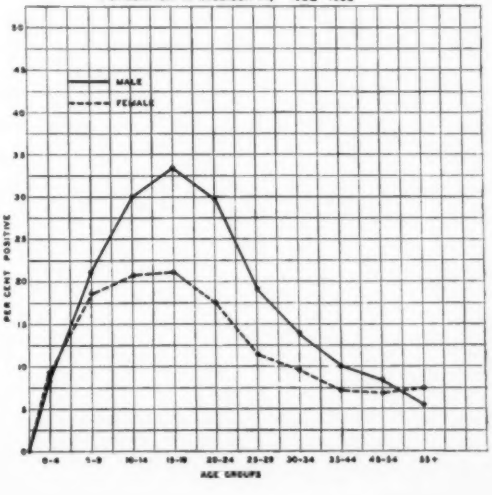


Table 1

Distribution According to Incidence of Hookworm Infestation in 49 Counties in 1910-1914 and 52 Counties in 1932-1933

White Population

Incidence	Number of Counties 1910-1914	1932-1933
0 - 9	3	22
10 - 19	4	11
20 - 29	2	9
30 - 39	4	7
40 - 49	6	2
50 - 59	5	1
60 - 69	15	0
70 - 79	7	0
80 - 89	3	0
Total	49	52

The specimens from white persons were about equally distributed among the two sexes. Of the total 21,828 specimens examined from males 22.9 per cent contained hookworm eggs and 16.9 per cent of 22,552 specimens from females were positive. An analysis of the age and sex distribution of hookworms shows a relatively low incidence in the age groups under five years. Beginning with the age of five there is an increase in incidence in each age group for males and females through nineteen years when a peak of 33.4 per cent for males and 21.1 per cent for females is reached. The decrease in incidence is not marked until the age of thirty is reached. For the age periods 30 to 55 and above an average of 9.5 per cent of the males and 7.8 per cent of the females were found to harbor hookworms. While the incidence of hookworm is highest in the school age groups, the prevalence among young adults is almost as high. It should also be noted that an appreciable per cent of the adult population examined were found to have hookworms. These data concerning the age and sex distribution of hookworms are shown in Graph 1.

In discussing the intensity of infestation of hookworm, or worm burden, it should be stated that all the data in this report are given in terms of hookworm eggs per gram of feces. While it is possible on this basis to make an estimate of the number of hookworms harbored by an individual, various workers are not in agreement as to the exact number of hookworm eggs there are for each female worm. The clinical classification suggested by Smillie and Augustine is based on the total number of hookworms harbored and it indicates the relative degree of hookworm infestation as regards clinical manifestations. This classification is included in this report together with the number of eggs per gram of feces in each clinical group.

Table 2

Classification of Hookworm Infestation According to Smillie and Augustine

Group	Clinical Classification	Number of Eggs per Gram of Feces
1	Very Light Infestation	
	1 - 25 worms	200 - 699
2	Light Infestation	
	26 - 100 worms	700 - 2,599
3	Moderate Infestation	
	101 - 500 worms	2,600 - 12,599
4	Heavy Infestation	
	501 - 1,000 worms	12,600 - 25,099
5	Very Heavy Infestation	
	1,001 or more worms	25,100 and over

In analyzing the intensity of infestation the total number of positive specimens in males and females are divided into intensity groups for each sex. In the males 27 per cent of all the positive specimens contained 2,600 or more eggs per gram of feces (100 worms or more) while 21.0 per cent of all the positive specimens in females contained the same number of eggs. These data are shown in Table 3.

Table 3

Intensity of Hookworm Infestation in 4,992 White Males and 3,702 White Females

Eggs per Gram of Feces	Males Number Pos.	Pct. Pos.	Females Number Pos.	Pct. Pos.
200 - 699	1,514	30.3	1,399	37.7
700 - 1,299	1,394	27.9	1,075	29.0
1,300 - 2,599	730	14.8	455	12.3
2,600 - 12,599	1,129	22.8	632	17.2
12,600 - 25,099	142	2.6	96	2.6
25,100 and over	81	1.6	45	1.2
Total	4,992	100.0	3,702	100.0

The intensity of infestation of hookworm in this series was found to parallel the incidence in each age group and for each sex. The average intensity for all the positive specimens in males was 2,100 eggs per gram and for females 1,800 eggs per gram. The highest intensity was found in the age periods 5 to 19 years where in the males the average was 2,800 eggs per gram (estimated 112 worms) and for females 2,140 eggs per gram (estimated 80 worms). There are two exceptions, however, to this finding in that among females in the age groups 35 to 44 years the average count was 2,440 eggs per gram

which is essentially the same as that for females in the age periods 5 to 19 years. This would indicate that even though the incidence of hookworm was relatively low in females in this age period some of them had heavy infestations which increased the average for the group. The same factors are probably responsible for the increase in intensity in males in the age groups 55 and over, in which group the average count was 3,250 eggs per gram. The fact that the average intensity of infestation in some of the older age groups is high indicates that in adults heavy worm burdens are built up. This is more likely to be true if other members of the family are infested. These data are shown in Table 4.

Table 4

Incidence of Hookworm with Average Number of Eggs per Gram of Feces by Age for 4,992 White Males and 3,702 White Females

	Males		Females	
Age	Pct. Pos.	Avg. Intensity Eggs per Gram	Pct. Pos.	Avg. Intensity Eggs per Gram
0 - 4	7.6	2,350	8.2	2,230
5 - 9	21.3	2,310	18.5	2.510
10 - 14	30.0	3,290	20.7	2,500
15 - 19	33.4	2,800	21.1	1,870
20 - 24	29.8	2,210	17.7	1,500
25 - 29	19.1	1,800	11.5	1,390
30 - 34	13.8	1,660	9.6	1,700
35 - 44	10.0	1,470	7.1	2,440
45 - 54	8.4	1,030	7.0	1,190
55 & over	5.6	3,250	7.3	1,020
Total	22.9	2,100	16.9	1,800

An analysis of hookworm by families was made to show what proportion of persons living in families were infested. It was found that of the 12,994 families from which specimens were obtained 4,341, or 33 per cent, had one or more persons infested with hookworm. There were 17,899 persons examined in these families in which 8,497 had hookworm, making an incidence of 47.5 per cent in infested families. Although the actual incidence in these families is probably somewhat less than this, due to the fact that some families were not examined completely, nearly one-half of the individuals in infested families were found to harbor hookworms. The data indicate that all of the hookworm found in this series is concentrated in about one-third of the families studied so that the entire family in this disease should be considered in the control of hookworm and protection provided for those exposed to infestation.

A study of the infested families was made to determine whether or not the average intensity of infestation increased as the number of infested persons per family increased. It was found that 52.7 per cent of all the families studied had only one member harboring hookworm and that 47.3 per cent had more than one infested person in the family. Practically 90 per cent of the infested families reside in southern Mississippi. When only one person in a family had hookworm the average intensity was 1,610 eggs per gram of feces (64 worms). The increase in average intensity was not very marked when two or three members of a family were infested, the count being 2,360 and 2,445 eggs per gram respectively. When four or more persons were infested the average egg count per person was 3,993 eggs per gram (156 worms). This increased with the number of infested persons to 7,977 eggs per gram (316 worms) per person where seven or more members in a family were infested. These data indicate that with the increase in the number of infested persons per family there is an increase in the amount of soil pollution which results in the acquisition of heavy worm burdens. The data are shown in Table 5.

Table 5

Number of Infested Persons per Family and the Average Intensity of Hookworm Infestation per Infested Individual

Number of Infested Persons in Family	Number of Families Infested	Number of Persons Infested	Average Egg-Count. Eggs per Gram of Feces per Infested Individual	Approx. Number of Hookworms per Infested Individual
1	2,302	2,302	1,610	64
2	1,026	2,052	2,360	92
3	510	1,530	2,445	96
4	264	1,056	3,393	156
5	152	760	4,208	168
6	65	390	5,292	208
7 or more	53	407	7,977	316
	4,372	8,497		

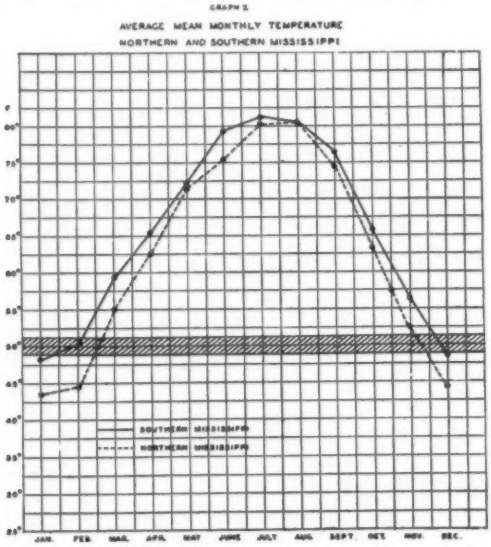
CLIMATOLOGICAL DATA

In order to accurately localize the hookworm problem in Mississippi it is necessary to review briefly certain data in regard to the climate and soil.

The climatological data for Mississippi are given separately for the northern and southern sections of the State. This division corresponds to that used by the Weather Bureau of the U. S. Department of Agriculture and is based on a

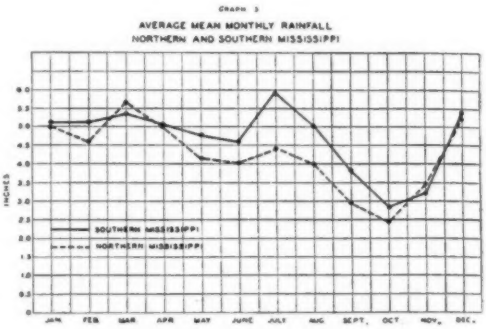
boundary line which extends from east to west through the southern parts of Noxubee, Winston, Attala and Holmes Counties and the northern border of Sharkey County.

An annual rainfall of 40 inches has been stated to be sufficient for the development of hookworm when the other factors necessary for propagation are favorable. The mean annual rainfall over a period of approximately twenty years in both northern and southern Mississippi was 51.31 and 56.54 inches respectively, thus exceeding the stated minimum. The five inches more rainfall in southern Mississippi occurs usually from April to November, the season of the year during which the temperature is most suitable for the development of hookworm larvae in the soil. These data are shown in graph 2.


GRAPH 2
AVERAGE MEAN MONTHLY TEMPERATURE
NORTHERN AND SOUTHERN MISSISSIPPI
SOUTHERN MISSISSIPPI
NORTHERN MISSISSIPPI
JAN. FEB. MAR. APRIL MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

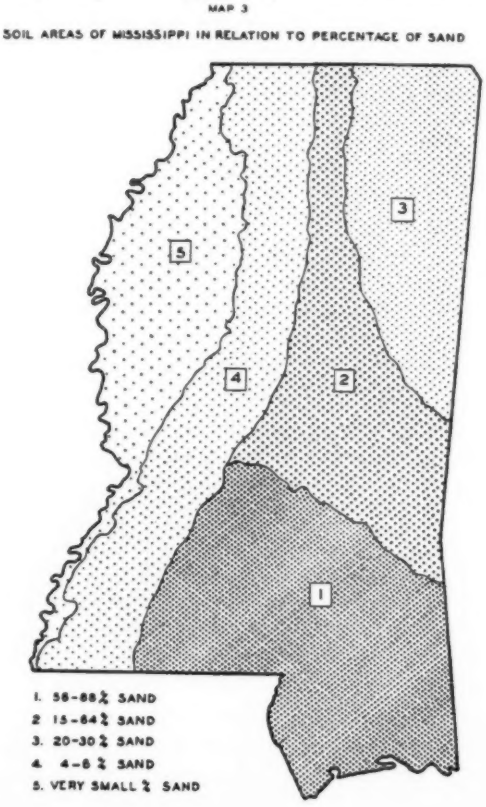
It is stated by Chandler that a uniform minimum temperature of 70° F. is necessary for the optimum development of hookworm larvae. A mean minimum temperature of 50° is considered by Augustine to be the level at which the development of hookworm larvae in the soil is checked. If these criteria are applied to the temperature records for Mississippi it is found that it is possible for hookworm larvae to remain infective in the soil for a period of seven months in northern Mississippi and eight months in southern Mississippi. Graph 3 shows the data regarding the mean monthly temperatures for the two divisions of the state.

In dividing the state into soil areas the general



plan as outlined in the Technical Bulletin, Number 7, of the State Department of Agriculture has been followed. For the purposes of this study the state Department of Agriculture has been followed. For purposes of this study the state may be divided into five soil areas on the basis of the relative per cent of sand in each section. Map 3 shows these divisions according to the per cent of sand.

An analysis of these data shows that area 1, comprising the long leaf pine and coastal re-



gions, contains from 56 to 88 per cent of coarse and fine sand, while area 2, the short leaf pine and central prairie regions, contains from 15 to 64 per cent sand. Area 3, which includes the northeast highlands, northeast prairie, Pontotoc Ridge and Flatwoods regions, contains from 20 to 30 per cent sand. Area 4, or the brown loam and loess region, contains from 4 to 6 per cent sand. Although the percentage of sand is not given for area 5, which is the Yazoo or Delta region, it probably does not exceed that of the brown loam and loess area. The composition of the soil in each region relative to clay and silt varies inversely, as a rule, with the amount of sand.

The relationship between the prevalence of hookworm and sandy soil has been shown very clearly by Smillie and Augustine. In Mississippi there is a striking correlation between the relative percentage of sand in each soil area and the incidence of hookworm. In the long leaf pine area where sand is found distributed uniformly the average incidence of hookworm in 24 counties was 25.5 per cent. In the short leaf pine area where there is a marked variation in the amount of sand in the soil, the average incidence was 11.6 per cent. The incidence of hookworm is lowest in the other sections where the per cent of sand varies from 4 to 6 per cent to 20 to 30 per cent.

There is not, however, so striking a correlation between the percentage of sand in the soil and the average intensity of infestation. This has been shown to be true in other countries where the incidence is high and the intensity of infestation low. It would seem more likely that in sandy soil areas the building up of heavy worm burdens would depend more on the amount of soil pollution and the opportunity for acquiring the infestation. The data regarding the relationship of the incidence and intensity of hookworm in relation to sandy soil are shown in Table 6.

Table 6

The Incidence and Intensty of Hookworm Infestation in Mississippi in Relation to the Per Cent of Sand in the Soil

Soil Areas	Pct. Sand	Num'r Counties	Num'r Examined	Pct. Positive	Avg. Egg-Count per Gram of Feces
1. Long Leaf Pine Coastal	56-88	24	23,542	25.5	2,190
2. Short Leaf Pin e Central Prairie	15-64	11	9,340	11.6	1,920
3. Northeast Highlands	20-30	10	6,989	6.3	1,760
4. Brown Loam or Loess	4-6	6	3,963	6.0	1,510
5. Delta	Very Small	1	546	2.0	2,000

THE HOOKWORM PROBLEM IN NEGROES IN MISSISSIPPI

The 6,441 specimens from negroes were secured from 32 of the 52 counties studied. The negroes examined in this series lived in the same communities and under essentially similar environmental conditions as the white individuals examined.

In the present series only 88 specimens contained hookworm eggs, making a hookworm incidence of 1.4 per cent among negroes. All of the positive specimens were found in eight of the 32 counties. In comparing the incidence of hookworm in negroes at the present time with that during 1910-1914 it is found that there was an incidence of 14.2 per cent among 5,620 negroes from the same counties. This shows a marked reduction in negroes since the early study.

There are no essential differences in the age and sex distribution of hookworm for the white and negro population. A smaller per cent of Negroes had intensities of infestation of 2,600 eggs or more per gram of feces than was found in white persons.

Table 7 shows a comparison of hookworm in the white and negro population examined in Mississippi during 1932-1933.

Table 7

Comparison of Hookworm in the White and Negro Population in Mississippi 1932-1933

	Incidence			Average Intensity of Infestation—Eggs per Gram of Feces	
	Total	Male	Female	Male	Female
White	19.6	22.9	16.9	2,100	1,800
Negro	1.4	1.7	1.2	1,450	1,420

These data show that one out of every five white persons examined and one in sixty negroes showed hookworm eggs in the feces. This indicates that hookworm in the negro does not constitute an important public health problem. This is important from the point of view of

control measures because one half of the population of the state is composed of negroes.

The data concerning the incidence by age groups and the distribution between the sexes make it possible to estimate the total number of white individuals probably infested with hookworm in the counties studied in Mississippi. By computing the total number of persons according to sex in each age group in the population examined and applying the prevalence rates found in each age period it is estimated that there are approximately 86,000 white persons infested in these areas of Mississippi at the present time. When this figure is compared with a similar rough estimate of more than 200,000 computed from the incidence records of the same groups compiled by the Rockefeller Sanitary Commission it is evident that the control measures which have been applied have been effective in bringing about this reduction in the number of persons infested with hookworm.

It is interesting to compare the hookworm situation in Mississippi with that in adjacent states. A study of hookworm in Alabama in 1930 revealed an incidence varying from 21 to 75 per cent with a relatively low intensity of infestation. An average incidence of 50 per cent with 40 per cent of the individuals examined having a sufficient intensity of infestation to require treatment has been reported from Florida in 1927. It is evident as regards hookworm in Mississippi at the present time that the situation is comparable to that in Alabama while in Florida there is a relatively higher incidence and greater intensity of infestation.

The data available for Tennessee show a hookworm incidence of 6.8 per cent but the intensity of infestation is about the same as that found in Mississippi. The hookworm area of Tennessee, however, is smaller than that of Mississippi and it is located in the upper limits of the hookworm belt of the world. The conditions serve to limit the spread of hookworm in Tennessee.

In discussing the factors that have probably been involved in the reduction in the incidence and intensity of hookworm infestation in Mississippi it is evident that treatment has been a major factor. The fifth annual report of the Rockefeller Sanitary Commission published in 1915 shows that 112,737 persons were given treatment in the hookworm dispensaries and by physicians in Mississippi during the period 1910-1914. The treatment of such a large number of people over a relatively short period of time no doubt was instrumental in bringing about a marked lowering of the intensity of infestation.

Since 1914 the biennial reports of the State Board of Health (1915-1931) show that 83,278 treatments have been dispensed through the activities of the full-time county health departments. This does not take into consideration the number of persons treated by physicians during that period but the number is in all probability large. The continuation of treatment since 1915 by local health officers and physicians has also been instrumental in limiting the spread of hookworm and keeping the worm burdens of individuals at a relatively low level.

It was recognized early in the hookworm campaign that the prevention of soil pollution with human excreta was of fundamental importance in permanently controlling hookworm. Sanitary surveys at that time revealed only a small percentage of homes with proper methods of excreta disposal. Since 1910 the official health agencies in Mississippi have aggressively engaged in a sanitation program. This activity has been successful in the more progressive communities and in counties with full time health departments, and as a result 152,031 homes have installed satisfactory methods of sewage disposal since 1915.

Data furnished by the State Board of Health for 35 of the 52 counties investigated show an estimated average of about 10 per cent of rural homes having proper methods of excreta disposal. Although a large number of families have been provided with proper sewage disposal it is evident that this part of the hookworm campaign has not developed as rapidly as therapeutic measures. This is probably due to the fact that tangible results are immediately obtained following treatment and that the results of sanitation are not as quickly discernable as those following treatment. For this reason this phase of hookworm control has been more difficult to apply.

The educational measures by the State Board of Health in cooperation with the medical profession have been carried on for the purpose of

continuing the interest and cooperation of the people in the control of hookworm disease. Field observations made during the course of this study indicate that severe cases of hookworm disease exhibiting clinical manifestations, while still present in Mississippi, are rarely found except in the more isolated and remote rural communities. It is believed that the effects of hookworm infestation and the results following treatment are reasonably well known among the general population so that treatment is secured much earlier. This helps to prevent the accumulation of heavy worm burdens which were encountered so frequently in the early days of the hookworm campaign.

CONCLUSIONS

The findings of this investigation indicate that definite results have been accomplished in the control of hookworm in Mississippi. The plan of attack against this problem which was inaugurated by the Rockefeller Sanitary Commission and continued by the State Board of Health in cooperation with the medical profession has been successful. Hookworm, however, still constitutes a public health problem in certain regions of the State, especially in the long leaf pine area of southern Mississippi where about 25 per cent of white population of the state live.

In the past emphasis has been placed on the control of hookworm mainly by therapeutic measures. While treatment has been undoubtedly effective in reducing the incidence and intensity of hookworm and is one of the necessary phases of a control campaign, it should not be considered of major importance.

Although it is more difficult to provide proper methods of excreta disposal than treatment the importance of such measures should be emphasized as a means of permanent control. Treatment should be used as an adjunct to sanitation and is a very useful procedure when employed in eliciting the interest and support of the people when attempting to institute sanitary measures.

The control measures against hookworm should be continued by the State Department of Public Health with the major emphasis upon proper methods of excreta disposal. With such a program, while directed mainly at hookworm, there would occur as a by-product the lowering of the prevalence of other diseases resulting from improper sewage disposal. Such measures should be administered by the local health agencies in cooperation with practitioners of medicine. If such a plan could be effectively continued the incidence and intensity of hookworm in the population could be permanently reduced to a point where hookworm disease would no longer constitute a public health problem.

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DISCUSSION

Dr. Harvey F. Garrison (Jackson): Dr. Leathers and Dr. Keller deserve a great deal of credit and are to be congratulated on this splendid study and analysis of the hookworm problem in Mississippi. I feel that the medical profession as a whole and the general public owe a debt of gratitude to these men for their untiring work and devotion to this task. Our thanks and appreciation for this splendid piece of work should be extended to our State Board of Health, to our own chief state health officer, Dr. Felix J. Under-

wood, to the Department of Preventive Medicine of Vanderbilt University, and to the International Health Division of the Rockefeller Foundation for making it possible for this study to have been made in our state.

This survey serves to remind us that the prevalence and intensity of hookworm infestation, although not as great as it once was, is still a problem in Mississippi. The report deals with this matter more as a public health question, and would probably be considered of greater importance to public health workers than practitioners of medicine.

The cause, as well as the means of prevention of hookworm infestation, could not have been more thoroughly covered; in fact the subject of cause and prevention is presented in a most forceful manner.

The technic given in the report for the estimation of the worm burden and egg counting method is one devised by Stoll, and has considerable advantage over the old method in that you can better estimate the value of one treatment over that of another, since you are able to determine accurately the intensity of infestation before treatment and to just as accurately determine the results obtained by a given remedy after treatment.

It would seem to us that, regardless of how well a program of proper sanitary control measures may be instituted, the ultimate goal or the complete eradication of hookworm infestation cannot be obtained without effective treatment.

I grant that it is just as true that, even though you do inaugurate a campaign of correct methods of treatment, you could not accomplish the complete eradication of hookworm infestation without the necessary control measures. We would insist that correct and effective treatment is absolutely essential to the ultimate solution of this problem.

Statistics have shown that the treatment of hookworm infestation by the use of oil of chenopodium and carbon tetrachloride was not as effective as we once thought. It has been proven beyond the question of a doubt in the minds of all who have had an opportunity to make a thorough study of the comparative value of the different remedies for the elimination of hookworm that tetrachlorethylene is by far the most effective, the least toxic, and the most economical of them all. The method of giving it is essentially the same as that of oil of chenopodium and carbon tetrachloride, namely one-half c. c. to children under ten years, and one c. c. to those over ten years, on an empty stomach, at 6, 8 and 10 a. m., followed by a purgative dose of magnesium sulphate at 12 noon, and repeated every seven days for three successive treatments. This method of treatment with tetrachlorethylene will remove from 98 to 100 per cent of hookworms.

The method of proper sanitary control so splendidly suggested in this paper will go a long way toward the eradication of hookworm infestation in this state, but without proper and effective treatment for the eradication and elimination of the infestation our efforts would be in vain. We should urge every practitioner of medicine in this state to make a routine stool examination on all patients coming under his care and finally impress the importance of instituting treatment with tetrachlorethylene, as this is by far the best remedy known for the complete eradication of hookworm infestation.

Dr. F. M. Smith (Vicksburg): It occurs to me that this section is most fortunate in having this paper, "An Analysis of the Hookworm Problem in Mississippi," as presented by Drs. Leathers and Keller. It shows the higher incidence of hookworm infection among the whites of our state and a relative low incidence among the negroes. It shows infestation relatively high in certain portions of our state and relatively low and practically absent in certain other portions of the state.

We might more clearly understand some of the facts brought out in this analysis if we briefly review the developmental stages of the hookworm, recall where and under what conditions these moltings or changes are made. The eggs of the hookworm are laid by the female in the alimentary canal of the human being and they leave the body in the excrement.

If soil and climate are favorable to their development they hatch in twenty-four to thirty-six hours into the embryo. The embryo within ten days molts twice and remains in the skin of the second molting. Larvae under suitable conditions, soil and climate, may live for months and longer than a year where winters are mild or scarcely exist. In the larval stage they enter a human being, burrowing through the skin between toes and possibly fingers, enter the blood stream, and reach the lung. The larvae pass up from the lung into the throat where they are swallowed into the stomach and passing into the intestine they molt, changing to sexually mature hookworms.

The whole developmental cycle **does not** and **cannot** take place in the intestinal tract, therefore the high incidence of ova or hookworms in the alimentary tract, as an average of 316 hookworms per person in a family of seen, bears a direct relationship to soil contamination and infestation with embryos and larvae. Therefore the urgent necessity in a fairly successful handling of even our present problem is the proper disposal of human excreta. It would be interesting to us to know what percentage of the families who furnished positive specimens had "E" type or open toilets, what percentage had no toilet. In those counties where the incidence was

extremely low it would be interesting to know what percentage of the positive cases were imported and what percentage was among the native population

Dr. Garrison, thinks, if I did not misunderstand him, that the greatest factor in control of this problem is proper and effectual medical treatment of the case. It occurs to me to ask, what has reduced the incidence of hookworm in the negro to so low a point. Was it medical treatment? What part have medical treatment or soil and climatic conditions played in producing the low incidence of hookworm infection and soil infestation as shown on the map in certain portions of Mississippi as presented by the essayist? To be sure, doctor, we want every case treated, but may we not be permitted to respectfully emphasize what we conceive to be a fact, that our progress in control of this problem will be unpardonably slow until we have made proper disposal of excreta from the infested human being.

Dr. H. C. Ricks, (Jackson): The records are available with the State Board of Health at Jackson which show that since the information was furnished Doctor Keller, 11,000 privies have been constructed in the State; and a large percentage have been constructed in the area showing heaviest hookworm infestation.

Dr. Keller (closing): I wish first to thank the physicians who discussed this paper. I agree with Dr. Garrison that tetrachlorethylene is a good anthelmintic to use for hookworm therapy. Dr. Garrison has done an important piece of investigative work with tetrachlorethylene under conditions where the patients who were treated could not become reinfested.

In regard to Dr. Smith's question concerning the sanitary and environmental conditions of members of families who were infested, I wish to say that 90 per cent of the infested families resided in southern Mississippi and most of the specimens were obtained from families residing in counties where sanitary facilities were very inadequate.

In regard to Dr. Smith's other question as to how many imported cases of hookworm are present in Mississippi, we have no information on that point. We do have, however, accurate reports of the racial distribution of hookworm in the areas studied, and with the exception of a few infested Indian children living on the reservation in Neshoba County most of the infested individuals in Mississippi were native white people. I do not believe that a great many cases of hookworm are imported into the state. While it is true that the tenant farmer moves about from place to place he is more likely to move from one county to another in the same section of the state, and for that reason most of the infested persons usually remain in the same general area.

The question is asked as to why negroes living under essentially the same environmental and sanitary conditions as white persons do not have as high an incidence and as heavy infestations with hookworm as do white persons. There are two theories concerning this point. One is that the skin of the feet of negroes is thicker and for that reason the hookworm larvae are unable to enter the body through the usual route. The other theory which should be taken into consideration in regard to this point is the development of immunity against parasitic infestations. Recent investigations have indicated that in older animals it is more difficult to transmit hookworm. The same may apply to humans. There is also the possibility that the negro who is said to have brought hookworm into America has been able over a period of years to rid himself of the parasite and develop a relative immunity against it whereas the white individual who is a relatively newer host will acquire the parasite more easily and build up heavier infestations.

In regard to the comments of Dr. Ricks, I wish to state that we are glad to know that we were able to furnish the State Board of Health pertinent information in regard to the distribution of hookworm in the state before the CWA privy construction program and sanitary work started. It is evident that this information has been used to advantage as the privy building program was begun in those areas of the state where the incidence of hookworm was the highest.

In closing I wish to thank the members of this Section for the privilege of presenting this paper for Dr. Leathers.

SOME OBSERVATIONS ON THE NEWER METHODS OF MALARIA CONTROL*

A. M. WYNNE, M.D.
MERIGOLD, MISS.

Has there been placed in the hands of the general practicioner agents that have a potential value in the field of preventive medicine and the control of malaria? In taking the affirmative of this question I base my position on experience in treating 476 cases of malaria during the period May to November, 1933, with atabrin, plasmochin and quinine. Of the total number atabrin or atabrin and plasmochin was given to 159 patients.

I can recall the year that I first came to

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the Mississippi Delta in 1889. I remember well the old cinchona cup into which the patients poured hot water, let it stand for thirty minutes, and then had to drink it. Later, under advice of an old doctor, quinine was placed on the table in a saucer and everyone at each meal took a generous quantity on the handle of a spoon. Still later we had the capsule of today, but only enough quinine was taken to keep off the next chill; the amount being repeated on the 7th, 14th, 21st and 28th days. Of course, in the meantime, we were filling up on Fowler's solution of arsenic until we could hardly see. Finally, in 1916, we had Dr. Bass and his trained corps of assistants, both field men and microscopists, who were endeavoring to demonstrate blood sterilization by quinine medication.

After thorough study and exhaustive clinical trial of quinine in different dosage and length of time to be given, it was decided that twenty grains of quinine sulphate for thirty days or ten grains for sixty days was the best treatment. Then the question arose as to how a doctor could get the majority of his patients, who were working out in the sun, to take either amount for the necessary length of time. Another question was that of getting the patient to buy the whole amount of quinine at one time. Little trouble was experienced when his physician gave it to him, but when it came to the question of his buying a complete malaria treatment in most cases for an entire family of from four to six persons he simply bought enough quinine to last two or three weeks and was soon back to see the doctor with the same old story. Again, we had a certain proportion, about 30 per cent, who, after taking the proper amount over the required time, in a week or two had relapses; the physician was then told that the patients had done as instructed, but still had malaria.

With some of our patients we tried the arsphenamines but with such varying success that I have ceased using it.

In April of 1933 I decided to try two of the newer drugs, atabrin and plasmochin, and with this in view I took up with the director of the Bolivar County Health Department the question of typing my malaria cases. This they readily agreed to do for me. After consideration of the type of patients who should be treated, it was decided to pick for treatment those who had malaria each year for the past several years. A complete and comprehensive study of all the material and literature in my possession was made and a routine treatment other than the drugs themselves—was worked out.

This treatment consisted of proper purgation, the repetition of the days for purgation, a proper diet, the restriction of alcoholic drinks and the absolute necessity of reporting to me once each week for blood examination for five consecutive weeks, the blood examinations to begin on the day following the last day of treatment.

The question of defraying the cost of the experiment was satisfactorily arranged by the manufacturers of the drugs assuming part of the expense.

The work was begun May 23, 1933, and for the period under consideration, 159 cases have been treated with atabrin and plasmochin together and have reported each week for the required five weeks for blood examination. Of this number, 152 or 95.6 per cent had a negative report on every blood test. Of the remaining seven, all of which had tertian malaria, one had positive blood the second week when atabrin was repeated with the blood remaining negative since; two had a positive blood the fourth week, received atabrin and have been negative since completing the second treatment; a fourth relapse has had three atabrin treatments and is still under observation. Of the three remaining, relapses occurred in March, 1934, each having a distinct malarial paroxysm, positive tertian blood and were given 60 gr. quinine in 24 hours, then placed on atabrin and have had negative blood since.

Of the 159 completed treatments, 69 were tertian and 90 estivo-autumnal; one patient had both tertian and estivo-autumnal parasites.

The following treatment was carried out as closely as possible in all cases. A thick smear of the patient's blood was taken, he was given sufficient empirin to control temperature and a purgative—either aromatic cascara or calomel; his blood smear was sent to the laboratory with the result of the examination being reported, patient was given one tablet of atabrin before each meal for five days. Alcoholic drinks were prohibited and diet restricted to one-half the

amount of meat. If the blood was estivo-autumnal positive, patient was given atabrin, one tablet before each meal and one-sixth grain plasmochin three times daily; dietary instructions same as for tertian type. The patient with the mixed infection was given atabrin and plasmochin.

From May 23 to October 1 we had positive laboratory malaria to the number of 476 of which 288 were tertian and 188 estivo-autumnal. As stated 159 were treated with atabrin and plasmochin, the remainder being divided into groups and treated with quinine.

To six cases 10 grains quinine were administered intravenously three times weekly for four weeks; all standing the intravenous medication very nicely with good results. Twelve cases were given quinine dihydrochloride, 15½ grains, administered intramuscularly every other day for eight doses; none of these relapsed although one had an abscess which cleared up without much trouble. The remaining 317 cases were subdivided into two groups, 159 of one group being placed on 20 grains quinine sulphate for 30 days, the other group of 158 were given my own modification of Sinton's treatment of the quinine in solution method. In these two groups the usual complaint of the effects of the quinine was made and about 10 per cent each of both groups stopped treatment before completion; however, of the completed treatments, those given the quinine in solution obtained, by far, the better results.

The results of the 159 cases treated with atabrin and plasmochin have been given. The six cases given intravenous quinine and the 12 cases treated intramuscularly had no relapses and no bad results from the drugs as given. As for the 159 cases treated with 20 grains quinine daily by mouth there were 17 relapses during the course of the treatment or while taking quinine and eight relapses within two weeks following completion of the treatment. Of the group treated with the quinine-epsom salts solution, there were seven relapses during treatment and six relapses within two weeks following completion of the treatment. From January to April, 1934, there were 21 relapses in the quinine groups—eight in the quinine solution group and 13 in the capsuled quinine sulphate group. Of the quinine sulphate in capsule form group 13.4 per cent relapsed, a total of 18.6 per cent relapses for all quinine groups against 4.5 per cent relapses for the atabrin and atabrin-plasmochin group.

Due to the financial conidtions of these patients, most of them were unable to buy mosquito bars or provide screening for their houses; this, together with a large increase in mosquito density, may account to some extent for the large number of relapses. Should this be true we should have had a proportionate number of relapses in the group treated with atabrin and atabrin-plasmochin. This proportionate number we did not have.

Now as to the bad effect on people taking atabrin and plasmochin we often hear mentioned. We did not find this to be true.

We observed 15 patients whose skin became yellow, some more than others. As this had been explained to them before treatment was commenced no one was alarmed and the treatment was finished. We had two patients, one of whom complained on the second or third day of abdominal pains, the other had diarrhea; in neither of these cases was the drug stopped, the patients were instructed to remain in bed with an ice bag over the abdomen and the drug was continued without further harmful effect.

CASE REPORTS

Case 1. A prominent citizen, well nourished and without any other physical ailment that we knew of, had a chill. Blood examination showed a positive tertian malaria. Following a calomel purge he was put on atabrin with no other medication. Within two days following completion of treatment he was suddenly taken ill with violent abdominal pains, nausea and vomiting. Being out of the city at the time my assistant saw him, made a tentative diagnosis of acute appendicitis and advised hospitalization immediately. A consultant was called in who confirmed the diagnosis and the patient sent to the hospital where he was seen by a competent surgeon who advised an immediate operation. The patient not wanting to undergo the operation, was seen by another consultant who, going more thoroughly into the case and eliciting that the patient had had malaria and only two days before the attack finished a course of atabrin, made a diagnosis of colitis due to the atabrin. He was in the hospital two weeks returning well to his home with his appendix still with him. I have my doubt, in this case, as to the atabrin causing his trouble. His blood was negative for malaria while in the hospital and remains negative up to the present time.

Case 2. A white boy, aged 17 years, was put on atabrin and plasmochin. On the fourth day of treatment he was brought into my office in the following condition: temperature normal, skin clammy and cold, lips blue, finger tips blue, heart rather rapid, pulse 100, color of skin very yellow. Treatment in his case was stopped and he was put to bed, no other medicine being given except a dose of cascara. His condition was better in 24 hours after which he rapidly returned to normal. We were unable to determine the reason why the drugs so upset his balance. These two cases were the only ones the drug affected enough to call for attention.

Case 3. C. H., white male, aged 28 years, temperature 104°, gave history of having had three chills on alternate days, medication, chill tonics. Blood showing tertian, empirin was given to control temperature, calomel purge and, without further medication, put on atabrin, one tablet, three times daily. He missed his next chill and, excepting a slight yellow tinge to the skin, had no further trouble until the fourth week: when, following the fourth negative report, he had a chill and his blood was positive tertian. Atabrin was repeated and he had no further trouble and his blood has been negative for five successive weeks.

Case 4. L. F., negro woman, aged 38 years, had had fever for two weeks. At time seen temperature was 103.5°, had been taking quinine, but could not state definite amount. Blood was sent to laboratory for malaria and typhoid, report showing positive estivo-autumnal malaria. Patient was put on one tablet of atabrin before each meal and 1/6 grain plasmochin after meals. She was clear of fever on the fourth day and has had no trouble and a negative blood since. This case is reported for the reason that the patient cleared promptly on atabrin and plasmochin after her quinine had failed.

Case 5. W. L. M., white female, aged 45 years. Have treated her for malaria every spring and summer for the past six years; has very bad history as to other illnesses—hyperthyroidism over a period of fifteen years, metabolic reading in January, 1933, was plus 35, amebic dysentery in 1932; due to extreme nervousness has never been able to complete a course of quinine. Blood on May 28, 1933, was positive estivo-autumnal. Put on atabrin and plasmochin, she completed the treatment without any inconvenience, has had a negative blood since and says she feels better than she has for several years. On September 1, had a chill; blood on examination showed tertian; given purgative and placed on atabrin three tablets daily; missed her next chill but at the end of treatment had a positive tertian blood report. The atabrin was repeated and at this time she had had no further trouble, her blood remaining negative.

Case No. 6: R. F. white. Has had malaria for several years. I was called to see this patient about 10 P. M. and found her with a case of malarial hematuria of three hours' duration. She had had a chill the day before, temperature 103°, urine scanty, about 3 ounces during the past 12 hours. Administered a calomel purge, gave attention to her kidneys and put her on atabrin. Temperature was normal in 24 hours with hematuria cleared up. Patient was watched very closely for reappearance of parasites in her blood. A smear had been made when first seen and found to be positive tertian; no parasites have appeared up to the present time.

Case 7. Miss K., white, aged 20 years. Have treated her for malaria for the past two years. Called to see her one morning and found her very much nauseated, temperature 104°, severe headache, complaining of pain in all joints. Blood smear gave positive estivo-autumnal malaria. Put on 60 grains quinine for first 24 hours and then 20 grains daily. At the end of 14 days called to see her again and found her with temperature of 103°, blood again positive estivo-autumnal malaria. Patient was given calomel purge and placed on atabrin and plasmochin. At the end of the third day her temperature was normal and on the sixth day her blood was negative for parasites, with a negative blood up to this time.

Case 8. C. R. G., white, aged 46 years. Has been feeling run down all spring. Was treated for malaria last year by me. Blood report from laboratory was positive estivo-autumnal malaria. Placed on atabrin and plasmochin and at the end of treatment blood was negative and patient felt quite improved. In about one week was back in the office reporting that he felt worse than he did before treatment and was inclined to believe that the atabrin-plasmochin was the cause of his condition. Blood was again negative but on examining his mouth and throat a smear was made from his teeth, tonsils and gums, finding that he had a positive Vincent's infection of all three. After proper treatment these conditions cleared up and he has regained his normal weight and health; his blood at this time is negative for malaria.

Case 9. H. S., colored male, aged 63 years. Called to see him in the middle of the night. The boy who came after me said he had had three chills. Patient was passing blood through his kidneys and had a typical malarial hematuria with temperature 104.5°. Blood showed positive tertian parasites. Patient was given a calomel purge, empirin for temperature and the next day started on atabrin. Temperature was normal on the third day but the hematuria persisted for four days and then cleared up. This old man made an uneventful recovery and his blood has been negative for parasites to this time.

Case 10. Negro boy, aged 18 years. A relapse from the quinine group, had a chill April 15, 1934.

Blood positive tertian. Given quinine in solution, 5 grains every three hours, for 24 hours. Had a chill April 17 and was given 31 grains quinine dihydrochloride in hip and 5 grains quinine sulphate capsule every 3 hours. Again had a chill on the 19th and was given 5 grains quinine bisulphate every three hours for 24 hours and atabrin, 1 tablet, 3 times daily, for 7 days. Missed his next chill and gave a negative blood on April 22, 25 and May 2 and 5.

In addition, we had 15 cases whose skin turned a decided yellow; these cleared up in about three weeks leaving no bad results. The total 159 patients have been asked the question, "if you have malaria again will you take the same treatment?" Only one answered in the negative.

I have used this treatment on three members of my family without the least sign of trouble, one of them, my son, having taken atabrin three times. Their blood was tested twice a month during December, January, February, March and April, remaining negative.

After a comparative study of the two groups, showing a negative blood in 96 per cent of cases treated with atabrin and atabrin-plasmochin as against 82.5 per cent negative bloods for the quinine groups, I unhesitatingly say that as a preventive measure for the control of malaria through the sterilization of the human host we have two most valuable agents in atabrin and plasmochin.

DISCUSSIONS

Dr. George E. Riley, (Jackson): I wish to congratulate Dr. Wynne upon the careful study and thorough follow-up he has made of these cases.

During the past year, a great deal of the literature was reviewed in an effort to learn more of the newer methods of malaria treatment, in order that this information might be passed on to the practising physicians of this State.

From personal innterviews, we learned that many physicians in this State were using atabrine. We were anxious to learn the results of this drug in the field here at home. With this purpose in view, questionnaires were prepared and sent to 150 representative practising physicians in 30 of our most malarious counties. Briefly summarized, this survey shows that atabrine alone was used in treating 1,322 cases, of which 881 or 67 per cent were diagnosed by positive blood smears; 1,220 or 93 per cent of the cases were reported as cured; 13 or 10 per cent of the cases were reported to have exhibited toxic symptoms. These toxic symptoms were listed as:

21—with headache alone; 26—jaundice alone; 60—jaundice and headache; 29—tender spleen and liver and headache; 1—nausea, headache, and jaundice; 1—profuse sweating and exhaustion two days after treatment.

Sixty per cent of the physicians answering the questionnaire reported that "atabrine is as effective or more effective and less toxic than quinine." One physician reports that "it is no good", and the remainder do not express an opinion because of limited experience. Three aid "no bad effects in pregnancy". Two said that they had good results in blackwater fever.

These symptoms, I believe all will agree, are the common symptoms noted in malaria and cannot be truly ascribed to the drug. More recent interviews with other physicians bear out the observations recorded by this survey. I wonder if the appendiceal symptoms to which Dr. Wynne refers in one case should not be ascribed to the pathology of malaria rather than to the action of the drug.

Colonel S. P. James (pg. 140, Malaria at Home and Abroad) says, "Acute splenic pain is sometimes referred to the region of the appendix and in rare cases the sudden onset of intense pain in the upper abdomen followed by collapse and signs suggesting acute peritonitis has been found to be due to acute malaria pancreatitis."

I believe that many of the so-called toxic symptoms ascribed to atabrine are in reality due to the pathology of malaria. Thrombosis, necrosis, diarrhea, hemorrhage, paralysis, neuritis, meningitis, and mental change are not infrequently seen in malaria. Several malaria cases have been operated on for appendicitis before malaria was found to be the cause of the appendiceal symptoms.

I should like to read a few statements from the 3rd General Report of the Malaria Commission of the League of Nations, published in 1933, and should like to call attention to the fact that this reprint is published by the "Bureau for Increasing the Use of Quinine":

> "Modern practice demands that the subject shall be dealth with separately, according to the species of parasite with which the patient is infected."
>
> "It is not good practice to treat attacks of malaria in the acute stage with more than one of the specific drugs available."
>
> "Plasmoquine should not be used in the treatment of acute attacks of any form of malaria."
>
> "It is a general consenusus of opinion that for treating primary attacks of P. falciparium, atabrine is very much more effective than quinine or any other remedy heretofore known."
>
> "In the primary attacks of benign tertian malaria in the dosage usually recommended,

both quinine and atabrine are invariably efficacious."

From the experiences of Clark of the Gorgas Memorial Hospital in Panama; the United Fruit Company, in the West Indies, South and Central America; Hackett and others in Italy; and more than 150 Mississippi practising physicians; I feel perfectly safe in recommending to the medical profession of this State that all malaria be treated with atabrine and, in the case of P. falciparum, this treatment be followed by one-sixth grain plasmochin after breakfast and one-sixth grain after supper for 5 to 7 days.

I wish to again thank Dr. Wynne for the presentation of this splendid paper.

Dr. Geo. W. Owen, (Shelby): I think we might perhaps sum up, in a brief way, what we more or less know, and some things we do not know, about the treatment of malaria.

Of course, for a number of years we have been depending upon cinchona, quinine in particular, in the treatment of malaria. Other drugs have been used, as calomel, methylene blue, and others without great added value.

Then, in 1924, the Research Laboratory at Elberfeld, Germany, came out with this product known to us as plasmochin, and it soon became evident that we had a drug that was going to be a material aid in the treatment of malaria. The observers who have used this drug have found that it acts primarily upon the gametocyte; we might say rendering the gametocyte sterile, and for this reason it has certainly aided in the treatment of malaria. This drug was looked upon for a time as a substitute for quinine, but really it cannot be used as a substitute for quinine, for where quinine acts principally upon the schizont, plasmochin acts primarily on the gamete.

Now a little later, after finding this was the case, this same laboratory attempted to find a drug that would act upon the original ring forms, before it had matured, and they have brought to us now that drug which we know as atabrin. Looking at it in this light, we have presumably the ideal situation—the drug that will take care of the ring before maturity, on the one hand, and the drug which will take care of the gamete on the other.

In 1929, at the meeting of the Southern Medical Association, in Louisville, Ky., I talked to Dr. Chas. Clark, who has been in the Panama Canal Zone for many years, and he was not thoroughly sold upon the use of plasmochin. At that time he estimated recurrences at about thirteen per cent, if my memory serves me well. Now there have been, I suspect, well over five hundred publications of the observations made on this subject since 1930. I have not reviewed all of them; in fact have seen but few of them. I think that Schulemann well sums up the situation in his observations, and gives, certainly, the most concise records that I have thus far seen. His records and observations agree with Dr. Wynne that the incidence of relapse is materially reduced by the use of atabrin and plasmochin. Despite that, I am frank to say that I don't believe the physicians of the Delta, or over the State, have been sufficiently impressed to the point where they are going to rely entirely on atabrin and plasmochin.

You will note that in Dr. Wynne's series, there were some individuals to whom he gave intravenous quinine, and in none of those did he have relapse. Now that will not always prove true, and there will be relapses in some persons who are given quinine intravenously. However, I feel that the percentage of relapses in this form of therapy will be smaller than in those treated only orally.

We are all, perhaps, thoroughly aware of the fact that quinine in solution is much more efficacious than that given in capsule. In the Canal Zone, this was our routine in treating acute cases of malaria. Immediately upon making the diagnosis, they were given 20 grains of quinine in solution of dilute hydrochloric acid. Ten grains, in solution, were continued three times daily until the temperature had subsided. Quinine sulphate or bisulphate was used in this weak solution of hyrdochloric acid to encourage absorption; and twenty grains was the first dose. We did not use the intravenous quinine except in comatose cases. The intramuscular use of quinine was absolutely prohibited, unless there was some contraindication to the intravenous method in the comatose cases. Quinine still has a very definite place in the treatment, and I have never seen any ill effects from the proper administration of quinine intravenously. There are two points that we must observe—give this intravenous quinine by the watch, taking fifteen minutes to give 15 grains; one grain per minute. That was the way we were required to give it. Now you can safely give from 10 to 20 grains intravenously, provided you dilute it sufficiently, and give it slowly enough. If you are going to give as much as twenty grains at one dose, you had better dilute it up to 50 or 100 c. c., but you can give 20 grains without any ill effect. The usual intravenous dose which I use is 10 grains.

I think this—that more of us ought to use these newer drugs. I think we certainly ought to select our cases. In my own immediate territory, all the physicians are not sold thoroughly on the use of atabrin and plasmochin. I have had one case, that, while I cannot actually say that the combination of these drugs was the cause of it. I can say that immediately after the close of the treatment of both atabrin and plasmochin, the child—I had more nerve than you did, Dr. Wynne—the child, six years of age, developed poliomyelitis and lost the use of both arms and both legs. This

child was sent to Memphis and my suspected diagnosis of poliomyelitis was confirmed. About three months after he came home, his condition cleared up and he regained the use of all the muscles. Now whether this child really had poliomyelitis or whether it was really due to the drugs, I can't say, but I can say that immediately after the close of the malaria treatment, it did develop.

I think that in atabrin and plasmochin we have a material aid in the treatment of malaria from the public health standpoint. I think that it is up to you and to me to use them to try to sterlize the gametocyte in our patients, but I am not convinced that they have replaced the use of quinine entirely in the treatment.

Dr. R. D. Dedwylder (Cleveland): This is a very important paper and I hope it will receive free discussion. It is presented in this section for the purpose of bringing out the importance of chemotherapy in the control of malaria. Due to the close approximation of the preventive, or control, and the curative aspects of malaria through chemotherapy, it has been found difficult to bring out the preventive side, from a public health standpoint, without including certain features developed in curative practice.

The only new thought presented in this paper is that of an agent used to bring about the sterlization of the blood.

During the period 1916-1921, inclusive, under Bass, chemotherapy was advocated and an extensive campaign carried out in the delta section of Mississippi with quinine as the sterilizing drug used.

We know that only a comparatively small percentage of treated malaria is cured. We know, too, that a large percentage of cases of malaria occurring each year are carried over from preceding years as untreated or uncured cases. All of these are potential sources of mosquito infection. Hence the importance of sterilization of the blood as a public health measure.

The effect of quinine on the asexual form of the parasite is specific. Unfortunately, the dosage and length of treatment are variable and impossible to fortell in any given case of malaria; therefore, we have relapses.

The problem in chemotherapy in the control of malaria is one of finding a drug, or drugs, equally effective against both the sporozoite stage and the gametes.

The essayist has presented two drugs—atabrin and plasmochin—which appear to solve the problem of control by blood sterilization with a large measure of certainty, in a short time, if intelligently used. It can be stated that a laboratory for the typing of your malaria is indispensable for optimum results from both the curative and preventive standpoints.

It appears from this paper that atabrin, alone, is effective against the fever-producing, asexual forms of the parasite in all froms of malaria. Atabrin also seems to have specific action on benign-tertian (vivax) malaria gametes or sexual forms of the parasite. Atabrin has, however, no specific effect on estivo-autumnal or malignant tertain gametes. In this latter case there is at you command another drug which is specific for the sexual or crescent forms of the parasite responsible for malignant tertian malaria. Plasmochin added to atabrin or quinine aids clinical treatment, quickly sterilizes the gametes and soon destroys them.

Citing the experience of others with these drugs and particularly emphasizing their potential value as preventive agents in the control of malaria by chemotherapy, I venture to submit certain quotations from the literature relative to the action of atabrin and plasmochin, as follows:

Brit. M. J. of Oct. 4, 1932, editorially says, Drs. B. M. Phelps and W. Jantzen of the Truxillo division, (United Fruit Co.), report equally satisfactory results in over a hundred cases. They suggest a single dose of the drug (atabrin) in the morning for three mornings as being most valuable from an administrative point of view and they emphasize the absence of relapses over a period of months. The above was in reference to the use of atabrin.

An interesting report relative to the use of atabrin and plasmochin is taken from Selective Action of Atabrin and Plasmochin Upon the Sub-tertian Malaria Parasite by Manson-Bahr, P. H. and Walters, C. H., The Lancet, Vol. 1: 15-17 as follows:

"This patient presented a naturally acquired subtertian malaria in which the different stages of the sub-tertian parasite—schizonts and gametocytes—were sufficiently numerous to enable the modus operandi of the two drugs, atabrin and plasmochin, to be worked out minutely upon the same patient. The chief points to be noted in this resume are the rapidity with which the ring forms of the parasite disappear after O. 9 g. of atabrin has been administered and the almost instantaneous effect of plasmochin upon the crescents. So sensitive does this stage of the parasite appear to be, that the process of exflagellation is almost immediately affected and it is seen to affect equally in both male and female forms."

From Malaria Studies on the Firestone Rubber Plantation in Liberia, West Africa, by Barber, M. A., Rice, J. B., Brown, J. Y. reported in the Am. J. Hygiene 1932, 15: 601-633 is quoted the following: "The fall in the mosquito infection rate of the two plasmoquine-treated camps was so large as to indicate a local disappearance, or at least a great reduction, in gametocyte carriers in the treated population. The minimum rate occurred during a period when plasmoquine would presum-

ably be most effective and was correlated with a fall in the crescent rate as shown by blood surveys. The anopheline infection rate was high in the two camps before treatment and rose after the treatment had been discontinued. The infection rate of the control camps remained high during the whole period."

Excerpts from an editorial: "A Drug Which Prevents Malaria" Lancet 1:1248 (June 6, 1931) reporting a lecture by Lieut-Colonel S. P. James in which he describes the manner in which the practice of malariotherapy is being utilised to ascertain whether any known or reputed antimalarial remedy is a true preventive of malarial infection caused in the natural way by the bites of mosquitoes carry the following. The lecturer pointed out that, although quinine suffices in large measure to satisfy the practicing physician by virtue of its infallible action on the asexual stages of the parasite, which are responsible for the fever and other clinical symptoms of the disease, it has three grave defects from the point of view of preventive medicine. The first, and by far the most important, is that it does not destroy the sporozoite stage of the parasite, which is responsible for infection; the second is that it has only a slight and uncertain action on the sexual stage, which is destined to continue the life cycle of the parasite in the mosquito; and the third is that its curative effect is seldom permanent, for the disease is liable to recur within a short or a long period after cessation of treatment. Evidently the problem of controlling malaria by the use of drugs is not so much a problem of finding a drug which is more effective than quinine against the fever producing forms or stages of the parasite as it is of finding one that will be equally effective against the sporozoite stage, the sexual stage, and the stage responsible for relapses.

It is in this connection that the practice of malariotherapy, provided that those who are to undergo the malaria course are infected in the natural way by the bites of mosquitoes, finds an important application and unique opportunity. Malariotherapy appears to be the only satisfactory method of testing the efficacy of drugs for other objects than the immediate cure of an attack, and, in particular, it is the only method by which to test the effect of drugs in killing the sporozoite stage of the parasite with a view to prevent infection. This is an aim which far surpasses all others in importance for, if a drug were available which would destroy that form of the parasite—the form which the mosquito injects—we should be in a position to prevent malaria from appearing among any group of individuals who would take the prophylactic doses.

The experimental work of Colonel James reviewed in the lengthy editorial with the results of tests with seven different preparations is recited and closes with the following statement. "The result in every case was that the prophylactic administration of beprochin in the manner described was successful in preventing the attack of fever and the appearance of parasites in the blood. In view of this striking result the experiments are now being repeated on a larger scale".

Dr. H. W. Priddy, (Memphis, Tenn.): I would like to ask this question. Right at the present time we have under our care a patient suffering from psychosis attributed to atabrin. I know two other cases who had the same condition in Memphis, but cleared up, and some physicians in Arkansas that I know say this has been the case with several, and I would like to know if you men who have had larger experience have observed any mental confusion following the use of this drug.

Dr. Wynne (closing): There are several reasons to my mind that are going to make me continue the use of atabrin personally. One is that the patient will take it and will not take quinine sixty days, or will not take twenty grains for thirty days. The point is—they can work taking atabrin and plasmochin. I would like to relate a little experience to illustrate. It was my pleasure to visit one of the largest levee camps on the Mississippi. My son worked up there. He developed malaria and I went up to see him and the doctor in charge of the camp came in and we discussed with the superintendent the question of atabrin and plasmochin. It happened they have about five hundred laborers and about only one hundred are from the delta areas of Arkansas and Mississippi and they have brought men from all over the north and northwest. These transient crews had no resistance whatever. The doctor put them on quinine and it liked to have closed the camp. They had a time limit on this construction work and the gentleman, who was not only superintendent, but owned a large interest, got desperate. They started using atabrin and plasmochin and the superintendent told me that as long as he had anything to do with a levee camp in the Mississippi Delta he would not use quinine in that camp, that he would rather buy atabrin and plasmochin at the enormous price because the boys could get back to work in two or three days and they could not with quinine. I treated two patients who had hyperthyrodism, one with a metabolic rate of 35 and the other 38 plus. Those two patients were ladies and could not take quinine. I attempted to give one quinine. She took twenty grains for thirty days and could not stay up, got up in the morning about 9:30 and had to go back to bed. The day after completion of the thirty days, she had a chill and I mean a real chill. I put her back on quinine. I was asked to give her atabrin and on the fourteenth day, the second round of quinine, she had

another chill while taking twenty grains a day, this time in solution. I put her on atabrin and now she says she is getting too fat and that it has cured her hyperthyroidism. I have seen only one patient out of one hundred and fifty-nine that stopped treatment. He was not my patient, but came into a doctor's office saying that he had had two or three chills. The doctor prescribed atabrin and plasmochin. The man had asthma. I do not prescribe atabrin and plasmochin unless the patient knows what he is taking. I let them suit themselves. This boy liked to have died. I believe it was the plasmochin that did it. I did not see the patient with acute appendictis. Dr. Owen thinks he had acute appendicitis, my assistant says he had acute appendicitis, another good man says it was due to atabrin. If you will watch your patients closely, give them sixty grains quinine and give it in solution, because a grown person can take quinine solution, give sixty grains in twenty-four hours, then put them on atabrin and plasmochin for five days, you won't have trouble, they will get well and won't have it next Spring. That is, we have had about only 5 per cent to relapse.

THE GENERAL PRACTITIONER AND TUBERCULOSIS*

HENRY BOSWELL, M. D.
SANATORIUM, MISS.

This paper is not intended to bring before this body anything new on this subject, but to emphasize the things known to be practical, and upon the proper use of which depends the life of the patient.

This disease is today looked upon as one of the curable type, if proper treatment is instituted at a stage where the pathology has not progressed beyond that point where the individual tissues cannot react to a building process.

It then follows that the safety of a patient depends upon the ability of the examining physician to establish a diagnosis before extensive pathology exists.

This disease, or rather the infection, is more prevalent by far than any known disease; therefore, should be at least suspected in every sick individual. Syphilis is a routine suspect in the practice of every physician. Yet the highest statistics of infection rate this disease at about 35 per cent in the negro, which in our experience is entirely too high. Malaria, another disease which we suspect in every individual in this climate, will not be found in more than 10 per cent of our population. These two diseases are looked for routinely in the every day practice of medicine, yet, in tuberculosis, the evidence of infection can be demonstrated in at least 80 per cent of our adult population and a large per cent of the children and is seldom looked for until the individual has been ill over a long period of time, or until the treatment for every other suspected disease has failed.

The important things to be considered which are practical for the average physician are first: the history of known exposure particularly in early chlidhood, inquiring if parents or grandparents whom he lived with or visited often had a "lung trouble" or "bad cough". This may be extended to other close relatives, such as aunts, uncles, etc., schoolmates while in public schools or in college, houses in which we lived during early life. Second: Personal history of frequent colds, or repeated attacks of flue, with cough lasting several weeks, slight loss of weight, fatigue, nervousness, indigestion, the latter especially important in young people, low grade elevation of temperature in afternoons, extending over a period of several days.

PHYSICAL EXAMINATION

The patient stripped to the skin, close observation often discloses a difference in the expansion of the two sides of the chest, retracted apices, etc. Auscultation, with a properly selected and fitted stethoscope, discloses fine and medium rales, persistent over a given area, especially after the expiratory cough, practically always mean the presence of a tuberculous lesion.

LABORATORY

Roentgen ray examination is not always available to the general practitioner. Therefore, is is not important in this paper, but can always be had in this state either by private individual or in the State Sanatorium.

CLINICAL

Clinical examination is always available to every physician by simply collecting the sputum and sending to private laboratory or to the State Board of Health. One, or several, negative examination means nothing, but it is the writers' belief that if daily specimens are collected over a long enough period of time that a very large per cent

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of the early cases will be reported positive.

TUBERCULIN TEST

Does not give us any indication of an active disease process except in small children, but when positive in any individual means that at some time in his life he has had the infection planted, and makes him a stronger suspect for active disease.

TREATMENT

The treatment of the disease has been worked out to such a point that we may divide the advice to an individual patient into the following heads: 1, sanatorium; 2, home treatment; 3, change of climate.

SANATORIUM TREATMENT

There are at the present time about 650 sanatorias in America with approximately 75,000 beds to accommodate the several hundred thousand patients with active tuberculous processes. This means that it is rather hard to get proper sanatorium accommodations for your patients for lack of bed capacity. However, it is always preferable to get the average patient into a good, well organized, and properly staffed sanatorium so that he may receive the training and discipline necessary to his longevity, also where the modern methods of treatment may be instituted where it is impossible in their homes. Sanatorium treatment consists first of the old and reliable routine, rest, food and diet, and, secondly, the modern surgical procedures which have been found to be valuable. Rest means physical and mental rest over a long period of time, for twenty-four hours per day. Food means a balanced diet of good wholesome food plainly cooked and tastefully served. No special diets are required except in cases complicated with other diseases. The old method of "stuffing" has long since been abandoned, as well as the giving of raw eggs, which is mentioned here only for the purpose of condemning.

SURGERY

Pneumothorax is the compressing of a lung by instilling air into the pleural cavity until pressure is sufficient to completely collapse the infected lung. This operation, looked upon by some as a simple thing, should never be done except by one who has good training and experience both in the actual technic of the operation and the selection of the case suitable for such a procedure.

PHRENISTECTOMY

The removal of a section of the phrenic nerve on one or both sides to limit the motion of the chest to secure the much needed rest for the diseased lung, likewise requires training as for a pneumothorax.

THOROCAPLASTY

Used in advanced unilateral cases for permanent collapse of the chest wall on side chosen. This is extensive and mutilating surgery, requiring great skill and judgment.

There are many other surgical procedures used in all well equipped and operated sanatoria which I will not mention for lack of time.

HOME TREATMENT

Home treatment is of necessity patterned after sanatorium treatment but limited for lack of trained personnel and equipment. Therefore, must consist of rest and such foods as can be supplied in the average home and discipline as can be obtained by what poor help may be had from the average family. The results of treatment will be in proportion to the nearer approach to sanatorium care and routine.

CLIMATE

For many years and even today many of the profession believe that certain climates have a beneficial effect on this disease notwithstanding the known fact that climate has no influence on the course of the disease and is today classed by those who have studied tuberculosis as merely a luxury. In other words, if you live in a mean climate and change to a good one your treatment is easier to take. No one should be advised to change climates unless they have ample funds to finance themselves in real sanatorium care.

DISCUSSION

Dr. F. M. Smith (Vicksburg): In this paper prepared by Dr. Boswell, the essayist, in discussing the "General Practicioner and Tuberculosis", has stressed the importance of history taking, the importance of definitely determining who are contacts, the vocation of contacts, etc. In this paper he also refers to the importance of a house wherein there abides or has previously abided a case of tuberculosis. It is not definitely clear to me whether he was referring to a home where a tubercular case or individual was now living, stressing the importance of concurrent disinfection or whether he had reference to a house where a tubercular case had lived, been treated, perhaps died, and the family desires to remain there or move away, and another family desires to move into

this house and he was stressing the importance of terminal disinfection. These conditions come up with us quite often—disinfecting or treating a room or house where a tubercular patient has lived or died. We have prepared some general instructions for caring for a room or house where there has previously existed a case or cases of communicable disease, that we give to people who desire to renovate same. However, we would be glad to hear Dr. Boswell's opinion on how soon these organisms, the tubercle bascilli, die when expelled or external to the human host, or how long they might live under certain conditions in a room where sanitation is extremely poor and filth abounds.

Dr. C. C. Hightower (Hattiesburg): About fifteen years ago I read a little paper in this society in which I said that tubercle bacilli could be found in almost every case of tuberculosis if the sputum was examined over a long enough period of time. After I made that statement I was sharply criticised by this society. The reason I made the statement was, not because I knew, but because of a small group of cases in which I was able to find the germs in almost every patient after repeated examinations of the sputum.

I just want to say here to-day that I am mighty glad to have an authority like Dr. Boswell bear out my statement made then by stating that practically all tubercular cases show bacilli in the sputum if a prolonged search is made for them.

Dr. William Krauss (Meridian): I just wanted to throw out a thought in connection with sputum examination itself. A good many people who make examinations of sputum have an idea that if they make the smear thick enough they can find bacilli much more easily. I have often seen smears so thick in some places that they would not even dry. Well selected particles in a very thin smear will give you a batting average 100 per cent better than the sloppy method of just loading a slide, requiring perhaps eight or ten spreads to establish a diagnosis.

Dr. Henry Boswell (closing): I do not know that I can make you understand what I say or not on account of my throat, but this paper was not intended for anything new, but rather to remind the doctors of certain things that they can do simply and do in their offices regardless of where they live in order that we may still further reduce our death rate in this state. It will perhaps be interesting to you to know that within the last 18 years the death rate from tuberculosis in Mississippi has decreased 51 per cent, and it is going to decrease as rapidly as the medical profession understands and I am beginnig to believe that the medical profession of this state understands very much better than we have thought in the past, because of the clinic that we operate down at our place which is your clearing house for disputed diagnosis.

In checking my records the other day I found that 57 per cent for the past 20 years of examinations made in that office are negative tuberculosis, even although all of them were suspected of having it. It means that our doctors are giving their patients the much needed attention in the early stages of the disease. They are also getting a better class of patients, that is, we are getting fewer and fewer of the far advanced cases, those that we don't want to see.

With reference to what Dr. Hightower said about the examination of sputum, I am thoroughly convinced that a continued daily examination of the sputum will find tubercle baccilli in at least 9/10ths of the cases of early pulmonary tuberculosis. It may be that the daily sputum will have to be a 24-hour specimen but if collected properly and properly handled day after day we certainly can find it after a while. I have gone as high as twenty consecutive days without ever finding it, examining 24-hour specimens every day and being careful to get the smear in the right way.

With reference to Dr. Smith's statement about the house in that paper I had reference to the patients—particularly the poor class of people living in very badly and ill ventilated, ill lighted houses, moving into a house where tuberculosis has existed. There isn't any one in the world who knows how long tuberculosis may live where properly protected from light and air, with a certain amount of moisture present, but I have known it to grow for five years when collected in the dust of the house and the cleaning of the house. The safety of a house or room depends on its lighting and ventilation as to how safe you can make it after being occupied by a tubercular person.

I wish I could talk a little bit longer. These suggestions I made to you were made in the interest of you as practicing physicians and in the interest of the patient. It is impossible for us to treat all the tuberculosis at the institution as equally it is impossible for every doctor in the state to cure them, and we brought these practical things out to remind you. We mentioned the surgery merely to give the information along that line that would guide the average practitioner in advising his patient where to go and to whom to go, because that type of work requires long, hard experience to get the best results, and it requires some man who knows what he is doing to start with—that he is doing every day surgery or some of the other modern procedures of the treatment.

I would like to talk more, but my throat is in such a bad shape it is quite an effort to talk the least bit. I have enjoyed presenting this paper

to you. I always enjoy coming to these meetings. I feel every time I say anything like I am repeating something I said years ago. I thank you.

THE ROLE OF GLUCOSE IN SURGERY*

P. B. BRUMBY, M. D.
LEXINGTON, MISS.

Glucose therapy has come to assume an increasing role in the therapeutic armamentarium of the surgeon. Because of its wide usage and broad indications, I feel that a review of this subject will not be amiss.

The term glucose has been superceded, since the publication of the tenth revision of the U. S. phamocopeia, by dextrose, which term we use to denote this certain chemically pure dextrorotary sugar. The term glucose is used when chemical purity is not a necessary factor. Its administration may be orally, rectally, subcutaneously or intravenously, and pediatric practice allows, in intramuscular and peritoneal usage. The dosage and strength of solutions to be used are factors that we will consider with its indications and pharmacodynamic action.

The glucose, regardless of its method of administration, goes through identical metabolic processes. The effect of glucose absorbed from the gastro-intestinal tract differs from that by vein only in that the blood sugar level is not raised, in the normal patient, by ingested glucose or overcoming the renal threshold. This is often done when given intravenously, even at the calculated physiological rate of absorption as established by Wilder and Sansum. Using a full tolerance dose of 500 grams by mouth, Bennet and Dodd[1] found the highest increased blood sugar to be from a fasting normal of 83 to 125 one and one-half hours after administration.

At the two hour mark, due to the stimulation of this dose to an over production of endogenous insulin, the blood sugar level was uniformally below that which obtained before feeding was begun. Simultaneous non-protein nitrogen studies of the blood proved the concentration of each of these to be decreased approximately 10 per cent. This reduction was attributed to the increased osmotic tension due to increased blood sugar, and was accompanied by a marked diuresis. The urinary spillage was in no patient greater than 1/10 gram. In addition, the respiratory quotient was not affected beyond a reasonable margin of experimental error. This large quantity of glucose caused an unexplained somnolence in the experimental patients lasting for about two hours. The amount of ingested glucose which was lost with the feces or destroyed by fermentation in the digestive tract could not be calculated. In discussing the oral adminisration of large doses of glucose Bennet and Dodd[1] draw these conclusions. "1. It is a palatable and can be assimilated in quantities which materially increase daily caloric intake without greatly affecting the patient's appetite. 2. It is absorbed with less call for work by the digestive glands than almost any other substance. 3. Physiological and chemical observations made by us show that it evokes very little if any secretion of hydrochloric acid by the stomach. 4. Being in complete solution it evokes very little motor response from the stomach during its passage into the intestine. 5. It provides the tissue with an ideal substance for counteracting any tendency to acidosis."

The great difference between ingested glucose and glucose delivered intravenously is that the body cannot refuse intravenous treatment. Concentration of the blood sugar exceeding the normal renal threshold of 170 to 10 mg. per 100 c.c. occur, causing urinary spillage and the elimination of large quantities of water for its dilution. This may do harm or good according to the indications for the medication; if given for the purpose of combating dehydration, we are increasing the severity of this condition. If the elimination of toxins or the deliberate production of dehydration is desired, the results may be beneficial regardless of the strain upon the kidneys in eliminating unchanged dextrose.

*Read before the Section on Surgery at the Sixty-seventh Annual Session of the Mississippi State Medical Association, Natchez, May 8, 1934.

In the blood stream there can be found no chemical or biological difference between sugars from the digestive system or from those administered parenterally. The fate of the dextrose depends upon the condition of the patient and the rate of delivery into the blood stream. 1. It may be spilled through the urine if administered so rapidly that the temporary storage mechanism is over-taxed or the renal threshold is exceeded. 2. It may be stored in the skin which is not a normal store house for glycogen. 3. If the glycogen in the liver and the muscles is adequate for future needs it is in considerable part catabolized to CO_2 and water causing an increased respriatory quotent and basal metabolium reading. 4. If the glycogen store is inadequate noticeable catabolism does not occur, but the dextrose is conserved to be stored in the natural reservoirs.[2] There is no evidence to indicate that ingested or injected dextrose is treated differently.

The exact mechanism of the conversion of a simple glucose into the more complex polysaccharid glycogen is not known but is thought to be an inherent function of the liver cells. However, an enzyme glycogenase is known to be responsible for the reversal of the process by forming glucose from glycogen for its ultimate utilization. In starvation the glycogen reserve of the liver may be completely exhausted, but the blood sugar and muscle glycogen remain practically constant, the glycogen from muscles in starvation states is catabolized into lactic acid and is a factor in acidosis. The blood sugar level gives no index to the reserve of the liver. A hypoglycemia below 30 mg. is incompatible with life, due it is thought to the fact that this low tension of sugar leads to an accumulation in the tissues of a substance whose toxicity effects the brain as a sudden anoxemia would do.

The ease with which dextrose solutions are given intravenously and subcutaneously has had a tendency to cause a lessening of the care taken to have elective patients increase their glucose reserve. Animal experimentations has shown that an ether anaesthesia of one hour duration depletes the liver of one-half of its total glycogen reserve when preoperative administration had not been resorted to. When liver damage was present patients without such preoperative preparation showed 1.5 per cent liver glycogen against 10.8 per cent liver glycogen when 50 grams of glucose was given three times daily from one to two grams preoperative. Althausen[3] asserting that the human body usually requires 8 grams of glucose per kilo of body weight to supply adequately all the carbohydrate demands, and in advocating preoperative medication concludes that, "intravenous instillation of dextrose from the point of view of an increase in hepatic glycogen is equal but not more efficacious than a similar oral dose."

There is no controversy in glucose therapy as marked as that of its intravenous administration. The single dose advocated are led by Titus and Lightbody, Polak, Mozzola and Zweidel. The continuous method is advocated by Matas, Hendon, Warthen and Horsley. There is equally as much dissention as to the percentage of solution to be used and whether additional electrolytes should be added. The proper rate of injection is accepted as that determined by Wilder and Sansum in 1917 as being 0.8 gram of dextrose per kilo of body weight per hour, or to give a single 75 gram dose would require one hour and twenty minutes to administer to a 150 pound man. Austin[4] of Mayo Clinic however, in administering 4 grams of glucose per kilo per hour draws this conclusion, "that there was a wide individual variation of excretion in the urine of the glucose injected," and "From the standpoint of excretion of glucose there is little practical advantage in the slower, more tedious processes of administration." However, he does not take into consideration the dehydrating properties of the hypertonic solution. McConnell[5] in carefully studied experiments concluded that the continuous infusion is more physiological; using 40 drops of 10 per cent glucose per minute, he found that one-half hour following the administration the

average blood sugar reading had risen from 124 to 193 gradually declining to 142 after two hours' administration. While using 500 c.c. of 20 per cent solution in 45 minutes the initial blood sugar rise was from 122 to 560. At the end of two hours it was only as low as 193.

There are two paradoxes in regard to intravenous glucose therapy. The first is that the more complete the exhaustion of the glycogen store of the body the higher and more prolonged is the hyperglycemia with less glucose utilization from any given dose. Wierzuchowski[6] found that only three-fifths of the administered glucose was assimilated after fasting as against nine-tenths when a carbohydrate diet had been followed. Karr, Smith and others show that lesions causing starvation states tend to depress the power of the body to utilize glucose. The second paradox is known as the "initial phase." Either during or immediately after glucose administration the blood sugar reaches a level below that which obtained before the administration was begun. Titus and Lightbody[7] in their studies to determine the therapeutic dosage of intravenous glucose found that a dose of over 75 grams given at the rate of physiological utilization caused a marked fall in blood sugar. Following this primary fall in blood sugar the ability of the body to utilize a constant supply without a secondary hypoglycemic phase has been proven by cessation of urinary spillage and the constancy of the blood sugar level over a period of days.

Even wider than the controversy over the mode of intravenous administration is the question of the strength of solution to be used. Willems and McNeally[8] in discussing this subject said, "that theoretically a 4.9 per cent solution of this sugar in water has the same osmotic pressure as 0.85 per cent sodium chloride solution and is therefore isotonic with the blood and tissue fluids." Laking of the erythrocytes occur when concentration below 3½ per cent were used; whereas crenation appeared at 7 per cent. Evidence of this does not, however, close the argument, for the strength of solution depends more upon the indications for its usage. The objections appear more apparent as a laboratory study than a clinical reality. The one fact that must be definitely borne in mind is whether the indication is for the water fraction of the infusion or for the dextrose fraction. Polack[9] and his associates in discussing the therapeutic use of a hypertonic solution draw these conclusions. "1. That it is a food for the vital organs, especially the liver and heart muscle. 2. That its use temporarily improves the quality of the pulse by improving the ventricular filling of the heart. 3. That it temporarily raises the systolic B. P. and produces a peripheral circulation by its osmotic effect on the tissue fluids. 4. That it promotes diuresis and combats acidosis. 5. That it temporarily lowers body temperature. 6. That it increases the protective power of the blood, and according to Holbauer it stimulates the production of myelocytes. 7. That it decreases the coagulation time in jaundice but increases the clotting time in other patients. 8. That in high concentration it prevents agglutination of the blood." In his animal experiments he found that hypertonic solutions effect the circulation by acting upon the heart muscle itself, temporarily raising and sustaining blood pressure and pulse pressure and diminishing the rate by increasing the blood volume due to increasing the osmotic pressure within the vascular system. To this action he attributes the excellent results obtained by him in 200 consecutive cases of shock. In these cases he gave repeated small injections of a 50 per cent solution finding that 50 c.c. would raise the B. P. from 15 to 50 Hg. mm. within a period of from 4 to 5 minutes, maintaining it from 20 to 30 minutes. Then the indications for hypertonic solutions are combating shock, promotion of diuresis as in nephritis or anuria and certain poisonings, especially the barbiturates, and as a means of producing dehydration, and when the cardio-vascular system of the patient will not permit a larger volume of fluids to be infused. An isotonic 5 per cent solution, of

course, interferes less with the physiological status of the blood stream and tissue fluids. This solution is preferable where both the water and glucose fractions are of importance.

The addition of electrolytes to the solution of glucose will depend upon the indication, and in many cases the indications for glucose may be secondary to the indication for salts. This is especially true when there are lesions of the upper part of the gastrointestinal tract, or intestinal obstructions. Sodium chloride, Hartmann's solution or Ringer's solution may be used. A combination of 5 per cent dextrose in Ringer's solution is what Horsley[10] called an artificial blood serum and is to be used in conditions in which blood transfusions are indicated but not available, and in combating the hypotension of spinal anesthesia.

The committee[11] on intravenous medication appointed by the American Medical Association in 1927 makes this statement, "While recognizing and urging the value of intravenous therapy under appropriate conditions it is equally important to emphasize the fact that the injections of any foreign substances directly into the human blood stream is always a serious undertaking." Of this fact there can be no doubt but the deaths reported should impress this upon our minds. Burwinkel[12] in discussing this subject states, "the number of pulmonary emboli has considerably increased within the last three years; according to the autopsy material of Eppendorf Hospital it has increased ten fold. Recently Obendorfer raised the question as to the responsibility for this increase, it is believed that this causes the formation of thrombi and thus emboli." Though deaths are rare, reactions are fairly common. Titus states that "reactions following the intravenous use of dextrose solutions are unnecessary and avoidable provided no technical errors are allowed in its preparation or administration." Though this is no doubt true the possibilities of technical errors are many, the most likely error according to this author is the rate of injection; should it exceed 56 grams to a 70 kilo patient per hour it produces an over stimulation of the endogenous insulin causing a hypoglycemia. Reactions may occur after the lapse of variable period of time ranging from 30 to 40 seconds to several hours, regardless of the dosage or the percentage of the solution. It may range from only a slight rise in temperature to complete collapse. Clark[13] has reported a series of cases dying from acute cardiac dilatation following the administration of from 425 to 500 c.c. in varying percentages of solutions. Then Kosakai[14] has reported the destruction of the erythrocytes by a 20 per cent solution. Untoward clinical results are yet to be proved from this source. The syndrome described by Roundtree of nausea, restlessness, muscle tremors, convulsions, collapse, stupor and coma is supposed to follow the administration of large bulks of solutions. The hydrogention concentration theory has been discarded as a cause of reaction. It is proved that the alkali reserve of the body is sufficient to take care of ordinary variations in hydrogen ion concentration. This theory has been replaced by the proof of pyrogen in the water of the infusion. This cause is held responsible for most reactions by writers on the subject. Pyrogen is of an unknown chemical combination which is definitely the product of bacterial growth, the bacteria being killed, but this substance remaining potent regardless of the thoroughness of the sterilization. This substance is distilled over in the water without first being thoroughly vaporized. Rademaker[15] has shown that singly distilled water without the presence of this pyrogenous substance is perfectly safe, as safe as any triple distilled water processed in the same manner. Matas[16] in his original description of the continuous intravenous inifusion asserted that the temperature of the infused solutions could vary widely, exerting a beneficial effect upon the patients with hyperpyrexia when given at room temperature and a hot infusion was a benefit to those with hypothermia, however a safe range of temperature is between 90 and 110. A temperature above 110 causes hemolysis of the red blood corpuscles. But

with the use of solutions between these temperatures reactions are not caused.

The speed shock described by Herschfield and his co-workers following rapid administration of otherwise harmles solutions may come within 40 to 60 seconds and is characterized by apnea and other symptoms as muscular spasms, vomiting and diarrhea and may or may not prove fatal. This reaction is thought by Hershfield to be a definite hepatic entity inasmuch as such reactions cannot be gotten from dehepatized animals. Rademaker proves that individual susceptibility, disease itself and absorption from glassware play no part in infusion reactions. His failure to get reaction with solutions in which fresh rubber stoppers were boiled does not remove this as a source of reactions since there is a marked difference between the processing of rubber stoppers and that of the gum rubber in rubber tubing.

The question then arises as to whether the use of insulin with the administration of glucose is advisable. Theoretically the increased catabolism which might be brought about by the injection of insulin would increase its therapeutic effectiveness and give us greater control over the ultimate fate of the drug. The reaction is biological and has an entirely different effect upon the individual with a normal pancreas than that upon the diabetic individual. Rabinowitch and Bazin[17] have shown in normal human subjects that the injection of insulin may temporarily decrease carbohydrate utilization; other research workers have maintained that there is a slight unpredictable increase in its utilization but that it is impossible to know without clinical trial the amount of insulin needed to utilize a given amount of glucose in a particular patient. Allen[18] of the Mayo Clinic states that under a strict dietary regime it was possible to predict the amount of insulin needed in experimental animals but he was never able to balance glucose with insulin to prevent a hyperglycemia in patients. Weirzuchowski and Pieskow[19] draw this conclusion, "in short the total quantity of sugar excreted in the urine decreased very little under the influence of insulin." The respiratory quotent and basal metabolism depend upon the nutrition of the patient at the time of administration. When dextrose was used until the respiratory quotient stood at unity no increase was observed upon the administration of insulin; with patients fasting there was a slight increase in both. There has been no proof to show any definite increased glucose tolerance or therapeutic value derived from the administration of insulin with glucose; but certain deleterious actions are known. Titus and Lightbody established the fact that the administration of dextrose to nondiabetic patients stimulated the normal pancreas to an increased activity which results in a secondary hypoglycemia. To further reinforce this hypoglycemia with insulin is to increase late infusional reactions. McLeod[20] has found that insulin administered with carbohydrates changes the storage of glycogen from the natural reservoir, the liver, to the muscles, and that this muscle glycogen to be utilized must be thrown into the blood stream as blood lactic acid, which will further accentuate a preexisting acidosis. Andrews and Reuterskiold[21] stress the marked dehydrating effects of insulin upon patients already suffering from dehydration. Insulin injected intravenously can be recovered almost in toto from the urine.

Gage, Ochsner and Cutting[22] reported that intravenous glucose caused a marked but transient inhibition of peristalsis in the normal or obstructed intestine whereas insulin caused an increase activity in both. These authors state that experimental administration of insulin with dextrose will remove the inhibitory dextrose effect and will actually increase intestinal activity. However Quigley and Highstone[33] approaching the subject in a slightly different manner concluded that, "intravenous injections of dextrose usually produced no pronounced change in the rate in which a bolus traverses a loop of the dog's jejunum. With marked hypertonic solutions however, augmented persistalsis may follow, contending that in latent or actual ileus, intravenous dextrose is not contra-

indicted which is contraray to the conclusions drawn by Gage, Oschner and Cutting from their experimental data.

Where the water fraction of parenteral administration is indicated the use of hypodermoclysis is the safest and most fool-proof method of administration of electrolytes and fluids to which glucose in low dilutions may be added. Titus[24] states that dextrose solution in itself is not especially irritating when given subcutaneously regardless of its concentration, and when sloughs occur as they occasionally do, these are probably the results of pressure from injecting the solution too rapidly. Sloughs do occur we know and a patient must have fortitude to undergo repetition of this treatment. Continuous clyses are becoming more popular. When hypertonic solutions are not specifically indicated and the need of a large volume of fluids is not urgent and likely to be prolonged, this method of administration, preferably with 2 and one half to 5 per cent glucose solution should be the route of choice.

Glaser[25] reports the intramuscular administration of a 10 to 15 per cent solution in physiologocial saline with great benefit, a 20 per cent solution causing local reaction. Twenty to 40 c.c. of a 10 per cent solution was given in the thighs of infants with complete absorption within an hour. Sanford and Heitmyer[26] report excellent results with the injection of 100 c.c. of a 5 per cent solution intraperitoneally in infants. This may be repeated every 12 hours as needed.

Hepatic inefficiency has a specific role for dextrose therapy and glucose affords definite protection of the liver against anaesthetic agents. Proof of the inaccuracy of the statement that a damaged liver loses its ability to store glycogen has been adequately given. The damaged liver can store glycogen in sufficient quantities but its ability to form glycogen from other than carbohydrate sources is impaired. This is unfortunate because liver repair proceeds more rapidly with sufficient glycogen. Hepatic toxins are neutralized by partial or complete oxidation of dextrose and there is a definite reduction in the coagulation time in jaundice.

The value of the rectal administration of glucose solutions has been discussed for years, each year bringing its proofs and denials of the absorbability of rectally injected glucose. Eleling[27] showed that dextrose solutions will be absorbed at a slow rate when placed in the entire colon of the dog, finding a 10 per cent solution will absorb a little faster than an isotonic 5 per cent solution. Hypertonic solution result-in a decreased fluid absorption. Collin and Boas[28] working on a series of ward patients concluded, "that dextrose is absorbed when administered by rectum and in quantities making this a route of therapeutic value."

CONCLUSIONS

1. Orally administered glucose can be tolerated in large quantities without untoward effect and stored for utilization upon demand serving as a prophylactic against post-operative acidosis and vomiting.

2. There is unabated controversey between the advocates of a single intravenous dose of 75 grams of a 25 per cent solution given to the average weight patient at the rate of 56 grams per hour and those who prefer a continuous 5 or 10 per cent solution given at the rate not exceeding 125 c.c. per hour.

3. The rate of injection, the amount and strength of solutions must be governed by the indications with the theoretical considerations secondary.

4. In shock only hypertonic solutions should be used to prevent waterlogging of the tissues while hemorrhages may require massive doses of isotonic solutions given at a rate comparable with the emergency.

5. The addition of electrolytes depends upon the indication for which the infusion is to be used.

6. Intravenous medication has a small but definite mortality while reactions are not uncommon.

7. There are no indications for the use of insulin with dextrose in the normal patient.

8. The effect of dextrose upon intestinal activity is uncertain.

9. Subcutaneous administration of dextrose solution is safer than intravenous usage.

10. Glucose affords a definite protection to the liver in surgical procedures.

11. There is definite proof of the absorbability of rectally injected glucose.

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DISCUSSION

Dr. Paul Gamble (Greenville): We all appreciate the value of preventive medicine. It is the right of every prospective patient to have a careful study by his physician, before any operation is performed, and by the judicious use of glucose a bad surgical risk can be made a fairly good one.

Glucose is indicated in any disease condition or any post-operative condition in which the tissues require water, food and energy. Some of the more important of such conditions are the following—traumatic shock, slow and protracted bleeding, biliary tract disease, with or without jaundice, hepatitis, and any condition that dehydrates the tissues—emaciation in such conditi•ns as cancer, especially cancers of the gastro-intestinal tract, chronic infections such as that that accompanies chronic prostatitis associated with hypertrophied prostate, where the kidney function has been greatly damaged, salpingitis, peritonitis, and surgical conditions in the presence of chronic alcoholism, and in tetanus where the patient is unable to swallow.

Post-operative glucose should be given routinely in the following conditions: (a) when the operation has lasted for a considerable length of time; (b) when a large amount of anesthetic has been used, especially ether or chloroform; (c) where there is considerable loss of blood at operation; (d)when there is severe post-operative shock; (e) in vomiting due to acidosis following operation; (f) suppression of urine from any operation especially following operations on the urinary tract; (g)in connection with saline it should always be given in intestinal obstruction, either following operation or before it.

The question arises as to the best method of administration. It may be given subcutaneously, intravenously, or by rectum. If the patient is in a run own or weakened condition it should be given for several days preceding operation as it furnishes both fool and energy. During the operation it may be given subcutaneously as the patient will not suffer from any discomfort then. It should be given very slowly and every precaution taken to prevent over distention of the tissues. If given subcutaneously when the patient is awake there will be complaint of considerable discomfort and pain, and they will always dread the next dose. As a rule we prefer to give it intravenously, using a 5 or 10 per cent solution, 150 to 20 0c.c. per hour, depending upon the condition of the patient. We have found it more satisfactory to give it by the intravenous drip method instead of giving several large doses in 24 hours. Precautions should always be taken to see that the water is doubly or triple distilled and that the rubber tube and utensils used are free of all foreign material, so as to prevent any reaction.

Glucose serves first as a food for the vital or-

gans especially the liver and heart. It improves the quality of the pulse by improving the ventricular filling of the heart. It raises the systolic blood pressure and improves the peripheral circulation; it combats post operative acidosis, stimulates the function of the kidney, and increases the protective powers of the blood.

Dr. J. P. Wall (Jackson): You remember that in the U. S. Army the G. 1-2-3-4-5 departments, and G.2 is the department of intelligence. The function of that department is to gather information and disseminate it among the people who should know it. The doctor has gone through the literature and he has culled out those articles that are worth while; he has given us a proper evaluation of them and presented them in a very delightful manner, and I think you deserve congratulations, doctor. Regardless of how you look upon shock, of the many theories, there is one thing you can not get around and that is that your fluid of the blood is stagnating in the capillaries and the lymphatic spaces and consequently making less fluid for the heart to beat on and bringing about more or less starvation of the functions of the body, such as the renal, uriniary and, of course, the cerebral.

Glucose in the proper solution lessens this stagnation and keeps the fluid in the proper channels. The doctor speaks about giving glucose rectally. My experience has been that when you try to give glucose rectally, the rectum soon becomes irritated and it is almost impossible to continue it for any length of time, and if you have an acute abdominal condition and give glucose by rectum you will stimulate more or less the movement of the abdominal organs, something to be avoided under such a condition.

At the Baptist Hospital in Jackson over the past seven years, there have been over 10,000 of these solutions given, to be exact 10,089, and we have had reactions. We had quite a lot of reactions, until we learned how to make our apparatus better. Out of this 10,089 we got 0.4 per cent reactions, and we consider a reaction is a chill and a rise of temperature.

One other point and I am through. A few months ago I did an operation on the stomach of a patient. I gave this man an infusion twice a day while I was keeping the stomach quiet. That man, as far as I knew, had a perfectly normal heart. On the second day he had six of these infusions, his pulse dropped to 38. I didn't know what was the matter, I couldn't find out. The heart was beating along pretty regularly, but only 38, and I got to thinking, tried to think, and I remembered reading back as a student in Dr. Osler's book, he gave bradycardia as being caused by an excessive amount of sugar. I shot that fellow one c.c. of U/20 and his pulse shot back to 70 in a short while, and next morning was normal and went right along to an uneventful convalesence.

Dr. Brumby (closing): I appreciate the discussion very much and I will add this about the effect of sugar. Many cases have been reported where wound healing has been slow and a subsequent blood sugar determination has proved the blood sugar content to have been greatly increased. These patients have, however, proved to be insipient diabetics.

When you go into the subject of reactions from intravenous medication, the literature is so extensive that it is almost impossible for one man to cover the subject. I think however, that it has been proved that singly distilled water without the presence of pyrogenous substance is just as safe as those waters which have been triply distilled.

GLAUCOMA*

K. W. CONSTANTINE, M.D.
BIRMINGHAM, ALA.

Sir Duke-Edler, in the first volume of his recent book on ophthalmology, has presented us the results of much scientific research that should help us to study our cases of glaucoma more effectively; and to discover, if possible, some underlying etiological factor. In so doing we may avoid unnecessary operations and restore better health to these unfortunate victims. The following remarks about the physiology of the intra-ocular fluids are based largely upon his excellent work.

Ever since glaucoma has been recognized as a disease of the eye we have been diagnosing, treating and experimenting with it along the lines of increased intra-ocular pressure, which after all, are only symptoms of the disease. "The fundamental cause of this disease is obscure and so varied that it involves a large number of diseased conditions which bring about a similar changed condition in the intra-ocular tension."

A study of glaucoma, however, is essentially a study of intra-ocular pressure and secondarily a study of intra-ocular circulation, both of the blood, and of the intra-ocular fluids, consisting of the aqueous and vitreous.

The heart, arteries and veins only regulate the blood supply, but the vital processes of

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metabolism take place through the capillary walls. Krogh of Copenhagen (1929) estimated that if the capillaries in a man were spread out they would cover an acre and a half, or if placed end to end would encircle the earth a couple of times. The capillaries in the eye would probably extend several hundred miles.

The contractibility of these smaller vessels is controlled by a vaso-motor or sympathetic nervous system, and also more directly by a chemical mechanism.

The chemical constricting agents are pituitrin produced by the pituitary body, and adrenalin produced by the medulla of the adrenal glands. The pituitrin produces a slow tonic constricting action mainly on the smaller vessels and capillaries. Adrenalin acts violently and suddenly mainly on the larger vessels.

Opposed to these constricting agents are substances produced by the cell-tissues themselves called histamine. This histamine-like substance is a result of metabolism, and, by a local reflex action, causes dilatation of the capillaries, an increase in permeability, and a dilatation of the neighboring arterioles. This dilatation cannot be overcome by the constrictor mechanism and may produce local edema in the tissues where nourishment is most needed. This phenomenon occurs especially within the eye and plays a contributing part in glaucoma. It can be increased by trauma, heat, drugs, bacterial poisons and by any disturbance of the metabolism.

On the other hand large doses of adrenalin, by contracting the capillaries, cause a fall in intra-ocular pressure in spite of an increase in the blood pressure, therefore this drug is valuable in the treatment of glaucoma.

In cases of arterial sclerosis with high blood pressure we may find low capillary pressure and low intra-ocular pressure due to the smaller lumen and the loss of activity of the smaller blood vessels. However, if the capillary walls are normal any increase in the blood pressure causes a corresponding increase in the intra-ocular pressure. This can be demonstrated by placing a tonometer on the cornea of a rabbit under deep anaesthesia. The intra-ocular fluid is composed of the vitreous that fills the posterior three-fourths of the eyeball and of the aqueous that fills the anterior fourth. Both of these fluids consist mainly of the same elements as in the blood plasma. They contain about three per cent more water but only traces of colloids. In addition the vitreous contains a muco-protein (true mucin) and a residual protein (gel), which substances are secreted from the surrounding ectoderm mainly from the retina. An earlier theory about the origin of the intra-ocular fluid was that it was a secretion from the ciliary epithelium. A later one that it was formed by transudation from the blood.

The generally accepted theory today is that this intra-ocular fluid is a dialysate in equilibrium with the capillary blood, the semi-permeable membrane being the capillary walls that hold back the colloids and allow the water and crystalloids to pass through.

The composition of the aqueous and vitreous is a result of "capillary permeability and not pressure difference between the blood stream and the chambers of the eye". There is no evidence of chemical energy in its formation.

Just as the intra-ocular fluid is formed from the capillaries of all the tissues of the eye, similarly it is absorbed by all but especially by the anterior surface of the iris and the canal of Schlemm. An obstruction to the exit of fluid seems to be a secondary rather than an etiological factor. However, in buthalmia or congenital glaucoma the canal of Schlemm is found very small or absent.

The intra-ocular pressure is maintained at its normal height by the volume of its contents derived from the blood and by the elasticity of the fibrous coat of the eye composed of the cornea and the sclera. The elasticity of the sclera diminishes as age advances until after forty years of age the sclera is very rigid and thereby increases the tendency to develop glaucoma. Another important factor in the etiology of glaucoma is the increase in the size of the lens with advancing age. Verhoeff (1925) and Torroella point out a retention of mucin and fluid in the vitreous as a result of changes in the hyaloid membrane and vitreous itself, causing a swollen vitreous and resulting in a shallow anterior chamber. These changes in turn may be the result of some chronic infection.

Conrad Berens of New York reports excellent results in the treatment of glaucoma and a number of other obscure eye inflammations by

the proper use of scientifically prepared autogenous vaccines. The source of infection is often the naso-pharynx.

Intra-ocular pressure is varied directly, first, by the pressure inside the eye. When the recti muscles are severed the tension falls from 4 to 20 mmg. and remains low for several days. By stimulating these muscles the tension is raised.

Similarly upon squeezing the eyelids tightly together the pressure can be raised, thus demonstrating the importance of injecting the lids with novocain in intra-ocular operations. The difficulty with the majority of cases of glaucoma is that its victims are practically blind in one eye and badly damaged in the other before they realize the significance of the disease. This apparent neglect is due to the absence of pain in the beginning, and the lack of visual disturbance, in that the nerve fibers that supply the peripheral field of vision are the first to be gradually destroyed by the intra-ocular pressure. This condition in glaucoma is often mistaken for optic atrophy. The optic atrophy is seen first, then the cupping of the discs. On account of the pressure, the retinal arteries become smaller than normal and veins enlarged. There is often some pulsation. This is the class of patients that suffer most at the hands of the optometrist; and if we, who are better trained, are not very careful we too may be guilty of overlooking this insiduous disease until serious damage has been inflicted.

Until we learn to control the output from the intra-ocular capillaries we must employ some method to allow the extra amount of fluid to escape by either opening the normal channels or making new channels. The principal drugs that are helpful to open the normal channels of fluid from the eye are pilocarpin and eserin, but their action is only temporary and not safe over a long period of time. They act by thinning the iris, drawing it from the anterior chamber and by pulling on the scleral spur, open the canal of Schlemm and thereby allow an extra amount of fluid to escape into the veins. Unfortunately, these drugs do not cause constriction of the capillaries but on the contrary, at first cause dilatation.

Atropin causes dilatation of the capillaries, it thickens the iris and crowds it into the angle of the anterior chamber, relaxes the ciliary muscle which otherwise pulls on the scleral spur, and closes Schlemm's canal. Consequently it is a dangerous drug to use in elderly people.

There are several classical operations for allowing the increased intra-ocular fluid to escape. The first one was an iridectomy (performed by von Graefe in 1856) and this will relieve tension in about 50 per cent of cases of acute glaucoma but it is not so effective in the chronic or simple glaucomas. About 1910 Col. Elliot devised the trephine operation which brought the percentage of cures in these simple glaucomas to about 80 per cent.

A more recent operation is iridencleisis, which I believe will bring the percentage of successes up to 95 per cent or more. Except for two juvenile cases, one of which was not a fair risk, and a woman who developed an inflammatory condition of her entire uveal tract, probably partly as a result of badly abscessed teeth, diseased tonsils and chronic rhinitis, as far as I know my 61 consecutive cases are 100 per cent relieved. Even in the latter case, the operation controlled the tension in spite of the inflammation and the use of atropin.

The late Prof. Lundsgaard of Copenhagen demonstrated the operation to me four years ago. It consists of laying down a large conjunctival flap, including Tenon's capsule, to the edge of the cornea, cutting straight through into the angle of the anterior chamber, using a special scleral knife; drawing the iris into the wound with a blunt hook or with iris forceps; performing a straight iridotomy through the sphincter of the pupil; drawing one edge of the iris into one angle of the wound and one edge into the other angle, then sewing the conjunctiva into place with a running silk suture. This operation is safe, effective and easy to perform. It has none of the dangers or difficulties of a trephine operation and gives better results. The tension afterward remains close to normal.

The point I wish to emphasize in this discussion of intra-ocular pressure is that we have been paying too much attention to the pathology of glaucoma which is a result of the pressure and not enough to the physiology of the intra-ocular circulation. The direct cause is often up-

set metabolism resulting from diseased capillaries. The remote cause may be some focal infection, especially in the naso-pharynx.

DISCUSSION

Dr. J. C. Pegues, (Greenville): I have enjoyed Dr. Constantine's paper and wish to congratulate him upon such a fine presentation.

At the beginning of this age of specialization there was a great tendency to learn one subject to the exclusion of all other parts of the body. The ophthalmologist studied the eye, the otologist studied the ear, the rhinologist the nose, and the larynogologist the throat. If there was a disease in another part of the body another doctor was consulted for that trouble, and very little effort made to correlate a disease of the eye, ear, nose and throat with that of the system.

Time and experience have proven the folly and futility of such a practice. As Dr. Constantine has said, glaucoma is not merely a local condition, but is part and parcel of any number of bodily ailments—cardiovascular and renal diseases, and foci of infections surely play a part. And from a study of Dr. Constantine's paper one might perhaps be justified in saying that some cases of glaucoma take on many aspects of an allergic condition.

The doctor mentioned an increase of secretion, relief by means of adrenalin, dilation of the capillaries, the part histamine plays in glaucoma. All of these are prominent in allergic diseases. Bacterial allergy may cause hay-fever, asthma, urticaria. Bacterial toxins are conceded to be a cause of glaucoma. Under chemical allergy there are orris root causing hay fever, sulphur fumes causing asthma, and ragweed oilcausing dermatitis. A retention of urea in the blood may cause albuminuric retinitis; a retention of sugar may cause diabetic retinitis or cataract. Who of us is able to say whether or not the absorption of certain food products or the improper metabolism of certain foods may play a part in glaucoma?

I am frank to say that if we admit allergy does play a part in glaucoma the problem is very little nearer solution. Let us not think that our problem is solved when an allergic diagnosis has been made. This applies to the nose and throat as well as the eye. I do not know whether it does, or does not play a role, but I believe it at least ought to be considered until a definite cause is found. Testing with the individual bacteria and using a vaccine based on the results ought to be worth while.

Dr. A. G. Wilde, (Jackson): It is apparent that our conception of glaucoma is progressing along somewhat the same lines as many other medical terms. For instance for many centuries, diarrhea or flux, was regarded as a distinct disease, and all conditions manifested by copious intestinal discharges were so designated. This was true even during our Civil War. Gradually it was realized that this symptom was common to many unrelated conditions, which we later came to differentiate as enteritis, colitis, cholera, the various dysenteries, etc.

Likewise attacks of unconsciousness were designated as "the falling sickness" from ancient times, and later as epilepsy. We now know that this is also but a symptom, and instead of regarding it as a clinical entity, we speak of "the epilepsies", further subdividing them as far as our diagnostic acumen permits.

So when confronted by this symptom of increased intraocular tension, spoken of as glaucoma, it would probably be more correct to say "the glaucomas",—then specifying the variety at hand. While the end result of this symptom of hypertension within the eye is somewhat the same, the clinical manifestations accompanying its presence vary greatly. The conception of allergy as a basis of the acute cases, certainly gives us food for thought.

In acute congestive glaucoma you have the sudden onset with great venous engorgement throughout the uveal tract. In the chronic non-congestive type, this is entirely lacking, and the cause is probably quite different. We do not know the reason back of these slowly shrinking visual fields, with an entire absence of pain, and redness, only moderate increase of intraocular tension, and eventually leading to loss of central vision.

With any type of glaucoma under observation, the chief factors to watch are the visual field and blind spot. For delineating the latter, the old dust covered perimeter is hardly adequate. Some form of the tangent screen must be used. No case can be regarded as stationary where gradual shrinking of the visual form field is demonstrable, or the blind spot undergoing enlargement. In the estimation of this condition, the chief factors in the order of their importance are: 1—the form field and blind spot; 2—the intraocular tension as actually measured, not merely estimated by fingers; 3—central visual acuity; 4—fundus changes. These are of the least value, and appear last.

In the surgical treatment of the acute congestive glaucoma, the Von Graefe iridectomy has not been improved upon. For the chronic non-congestive type, the problem is of far greater complexity.

The iris inclusion operation described by Dr. Constantine is the one I now habitually employ. It constituted a decided step forward, and its origin was one of those curiosities seen from time to time in the scientific world.

Prof. Holth discovered that the classical iridectomies done, prior to the introduction of local anaesthesia in 1886 were usually effective for the chronic as well as for the acute types of glaucoma. Since then they have been useful only for the latter. Also he found that those iridectomies done

with a poor anatomical result, with ragged wounds and particles of iris included were on the whole of good functional outcome. When done cleanly and perfectly with no iris tissue remaining, the result was usually poor in the chronic non-congestive types. By back tracking these facts, he discovered that the vital step was the presence of this pigmented uveal tissue in the wound, which seemed to insure permanent drainage. So this was then done intentionally, and as an out-growth of the accumulated experience, we have the iridenclysis of today.

Dr. L. S. Gaudet, (Natchez): The paper of Dr. Constantine has been so excellent, the discussions have been so well taken, that there is very little room for me to say anything. I am perfectly in accord with them, that the majority of cases of glaucoma are due to constitutional symptoms and glaucoma itself is a local manifestation of other conditions. In my experience, particularly with simple glaucoma, we have found that focal infections and circulatory disturbances have been the greatest cause of glaucoma. In acute conditions they very frequently manifest themselves in a period of several hours, often times we are at sea to find the cause of those conditions. We are stumped very much in our acute cases because of the fact that they need immediate attention and often times we do not know what steps to take for the best interest of the patient.

Glaucoma is a very interesting subject, because it is always coming in the practices of the eye men; however, we have one help and that is the fact that the majority of cases are in elderly people, or people of middle age. When we take these cases—and here again the internist comes in very much as he does in sinus cases—when we get a complete picture from the internist, the eye man, and complete examination—not a superficial examination—we often times find the cause of our trouble, and when we are able to eliminate these troubles, we are able to accomplish a great deal for our patients.

I do not know Dr. Constantine personally, but I wish to congratulate him on his magnificent paper, and also on the discussion. I feel this morning that we have had so far, some very excellent papers, and above all things we have had some splendid discussions. I think we are making headway, gentlemen.

Dr. W. L. Hughes, (Jackson): There is just one point Dr. Wilde brought out that I would like to stress a little more, and it is in these cases of simple glaucoma we can not depend too much on the pressure of the eye and the patient's vision, because in most of these cases the central vision is the last to go. We have a patient and we bring the tension down within the limits of normalcy but we take our field and find our disease is going right on even though the symptoms are not, and in those cases I think our medical treatment is useless and an operation the only thing.

Dr. Constantine, (closing): I thank the doctors very much for the discussion. I haven't anything especial to add. I feel that the subject of allergy may have some bearing. We find in the nasopharynx the streptococci and all kinds of virulent germs that may be the source of this trouble more than we realize. That is the opinion especially of Conrad Berens of New York who has almost stopped operating on these cases of glaucoma and is curing them largely through the laboratory by autogenous vaccines.

In the acute cases of glaucoma this operation of iridencleisis is safe and very effective. I have not had an acute case that hasn't responded perfectly to the operation. We don't have time sometimes in these cases to investigate and make vaccines, but I feel that we have something definite to work upon along that line.

THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION BY USE OF THE BARIUM ENEMA UNDER FLUOROSCOPIC CONTROL*

C. P. RUTLEDGE, M. D.
SHREVEPORT, LA.

Intussusception is the invagination of a portion of the bowel wall into an adjacent part of the gut. Four types of intussusception are generally described:

(a) Enteric, involving the small intestine alone, usually confined to the ileum.

(b) Ileo-cecal, where the ileum and ileocecal valve pass into the cecum and colon.

(c) Ileo-colic, where the ileum prolapses through the ileo-cecal valve into the cecum.

(d) Colic, where the colon prolapses into itself.

Two forms of invagination are often mentioned by writers, one a so-called agenic form and the other a vital or persistent inflammatory form of invagination. Nothnagel suggests that these two forms be described as: (a) physiologic and (b) pathologic intussusception. The physiologic produces no symptoms during life but is often found at autopsy and is confined almost entirely to the small intestine. It is usually ascending in type, whereas pathologic intussusception is usually single, may involve al-

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most any portion of the bowel and is practically always descending in type.

Intusssusception occurs most frequently in infancy and early childhood, sixty-five to seventy per cent of the cases being seen in the first year of life. It is seen in males twice as often as in females. When seen in a person more than two years of age, a tumor within the bowel or a Meckel's diverticulum should be suspected. Three hundred cases of intussusception in adults reported by Eliot and Corscaden, showed one hundred cases of tumor of the intestine or a Meckel's diverticulum. Sixty per cent of these tumors were benign and forty per cent were malignant.

In acute cases the onset is nearly always sudden, the symptoms appearing unexpectedly, rapidly increasing in severity and reaching their maximum intensity in a short time. The child is apparently in the best of health when it is suddenly seized with colicky pains in the abdomen, a diarrhea or maybe vomiting. Bowel movements may consist almost entirely of mucus and blood with or without tenesmus.

Case 1. T. C., male, aged ten months, was referred to the writer for roentgen-ray examination of the colon, with a clinical diagnosis of obstruction. The patient was a well nourished, well developed infant, apparently not very sick. Temperature 101° (axilla) and pulse 84. The child was taken sick rather suddenly on the evening of January 11, 1931 while playing with his little sister. About 6:30 p. m., he suddenly began crying as if he had a severe abdominal cramp, the acuteness seemed to subside and he appeared some better. A few minutes later his symptoms returned and he became quite pale, lips blue. He did not feel like he had any fever. An enema was given at 9:30 p. m., which returned bloody. A physician was called at 10:30 p. m. and another enema given, which also returned bloody. The following morning another enema was given with the same results. Physical examination at this time revealed a sausage shaped mass in left upper and lower quadrants, extending across the upper abdomen in the region of the hepatic flexure of the colon.

Roentgen examination of the colon was made at this time by use of the barium enema (oil emulsion vehicle). A soft rubber catheter was inserted into the rectum and the clysma allowed to enter under fluoroscopic control. The enema was admitted without hindrance until it reached the distal third of the transverse colon at which point there was a distinct hesitation in the flow with a U-shaped filling defect in the colon at this point. Upon manipulation the barium column progressed for a distance of about three inches where it again stopped. Even with further manipulation and careful massage the barium column would not advance further than the middle of the transverse colon. With these findings a roentgen diagnosis of intussusception was made and immediate operation advised.

Operation, January 12, 1931: Sixteen inches of the terminal ileum was found invaginated through the ileo-cecal valve into the ascending and transverse colon, the head of the intussusception being in the middle of the transverse colon. The intussusception was reduced by milking the small intestine through the ileocecal valve. The gut was found to be slightly discolored and of a purplish blue color but still viable. The appendix was examined, found to be gangrenous and was removed.

Comment: The diagnosis was made in this case by use of the oil emulsion enema under fluoroscopic control, the enema quickly evacuated and the operation performed immediately with excellent results.

Pain is never absent and is usually the first symptom of an acute intussusception. It may come on while asleep or while playing, is usually paroxysmal in character and may stop, to return in a few moments with increased severity. When the condition is chronic, these pains may be intermittent and recur at intervals, in some instances the condition lasting for months. Adults can often localize their pain, but children cannot. Tenesmus is frequent in the acute form, especially in infants and young children; the nearer the intussusception to the rectum, the sooner the tenesmus appears. Vomiting is more frequent in the acute cases and small children; it is influenced by the site of the lesion; the higher up the lesion, the more constant the vomiting at onset; the more complete the obstruction, the more frequent and violent the vomiting. Appetite in the acute cases is lost and in the chronic cases greatly impaired. In the acute cases constipation is the rule; however, often a certain amount of material is evacuated from that portion of the bowel distal to the obstruction, and may consist of bloody mucus mixed with gas and some fecal matter. Complete obstruction does not always occur, in which cases diarrhea is constant, the patient having from five to twenty-five stools daily.

In the subacute and chronic forms, diarrhea may be intermittent, profuse some days and ab-

sent others. Chronic cases are probably very rare in children but they do occur. Some authors prefer to speak of a recurrent rather than a chronic intussusception. Bolling, in reporting a case of chronic, irreducible intussusception, stated that in his experience of about one hundred cases of intussusception in infancy, he had seeen only two instances of chronic invagination.

Edmund Andrews, in reporting a case of intussusception, makes the statement: "Chronic intussusception without obstruction, while it is known to occur, is probably rather rare."

The author is of the same opinion and believes that many cases of so-called chronic intussusception are really recurrences of insufficiently reduced acute cases.

Clinically the diagnosis is often readily made in the acute variety by the following symptoms: pain coming on suddenly in a healthy patient, vomiting, sometimes tenesmus, bloody or diarrheic stools, later followed by complete retention of feces combined with slight flatulent distension of the abdomen. The above when associated with a palpable characteristic sausage shaped tumor in the abdomen makes the diagnosis almost positive.

Roentgen Diagnosis

Although intussusception has been diagnosed clinically for several decades, the first reported cases where the roentgen ray was used occurred in 1913. Carman in his work published in 1920, reports no cases of his own but does mention two cases reported in 1914, one by Lehmann and another by Groedel. Snow reported two acute cases in 1915 in which he employed the barium enema and by use of the fluoroscope located the site of invagination but described no characteristic findings. Edberg, although very much interested in intussusception for more than twenty years has not employed the roentgen ray for diagnosis until within the last four or five years. In the ileal type the barium enema is of no value. He describes two main types: (1) the ileocecal and (2) the ileo-ileocolic. In the ileocecal type, the head of the intussusception may pass very far into the colon, with the colon distal to the lesion tubular and devoid of haustration. In the ileocolic type the primary invagination occurs in the distal portion of the terminal ileum and the ileum alone is at first involved. As a rule, this form does not advance very far into the colon and the clysma may be seen to pass between the middle and outer cylinders.

Edberg feels that a differentiation can be made between ileo-cecal and the ileo-ileocolic types by roentgen ray examination which is of great importance as the early ileo-cecal type can often be reduced by non-surgical methods, whereas the latter type should be treated surgically immediately.

Kerly and Lewald in their book published in 1923 give a beautiful illustration of the filling defect usually seen in intussusception. Gibbon employs the roentgen ray extensively in the diagnosis of intussusception. Where the symptoms are indicative of intussusception and no mass is palpable, if the roentgen ray examination is negative he believes that the probability of the presence of this lesion in the colon is ruled out.

Rankin advises against the use of the roentgen ray in the acute cases but thinks it of value in the chronic and subacute cases when the diagnosis is obscure.

Fortier and Gately in reporting a case of intussusception, caused by an inverted Meckels diverticulum, warn against relying too securely upon a negative roentgen examination in the presence of very positive clinical signs.

Davis and Parker advise against extensive roentgen examination in acute cases but employ the barium meal and enema in the chronic and subacute cases.

The author uses four to eight ounces of barium sulphate thoroughly mixed with Petrolagar (plain) one part and buttermilk two to three parts. This makes a very good suspension of the barium, is well borne by the patient and readily evacuated without lumping. In administering to infants, a soft rubber catheter is attached to the enema can, the distal end being inserted in the rectum where it is held in place by a nurse or assistant during the fluoroscopic examination. The clysma is allowed to enter the rectum rather slowly, the rapidity of the flow being regulated by raising and lowering of the enema can. When there is hesitation in the advance of the clysma, gentle massage is employed, and the pressure may be

gradually increased by raising the enema can, being very careful not to employ any great amount of force. As a rule the invaginated gut presents a U-shaped deformity which is rather characteristic on the roentgen film or the fluoroscopic screen. Often with care and patience the invaginated mass can be made to gradually recede until it passes back through the ileocecal valve and a considerable amount of the clysma may enter the terminal ileum. Generally when this takes place there is complete reduction of the intussusception. Should clinical symptoms recur and subsequent fluoroscopic examination show a return of the intussusception, immediate surgical intervention is advisable. The loose ileocecal type is usually reduced very easily by the barium enema under fluoroscopic control.

Many years ago Hirschsprung practiced a non-operative method of reduction of intussusception with good results. Hipsley of Austria reported fifty-one successful operative interventions for intussusception. Later the same author reported good results in more than one hundred cases with Hirschsprung's method. He stated at that time that the results by the conservative method were so good that he would be unwilling to submit a patient to operation for intussusception until the conservative means of reduction had been employed. An ileo-ileocolic intusssusception should always be operated upon at once.

Nordentoft reported ten cases of acute intussusception treated by conservative non-surgical methods. In six, the results were good; in the four unsuccessful cases, immediate operation was necessary; one case died shortly after operation and three recovered.

Although the intussusception is often not reduced, much valuable information is gained by the use of the barium enema under fluoroscopic control and frequently the operation is made much easier as the result of the partial reduction of the lesion.

Stephens reports two cases of acute intussusception reduced by the barium enema and manipulation under fluoroscopic control. He stresses the importance of seeing the clysma pass through the ileo-cecal valve into the ileum before assuming that there has been a reduction.

Artzen and Helsted reported two cases of acute intussusception in children diagnosed and reduced with the barium enema under fluoroscopic control.

Siperstein divides the treatment into the bloodless and the surgical methods. He subdivides the bloodless method into: (a) dry taxis, (b) air inflation, and (c) fluid (water or barium) injection by rectum. Statistics show that with proper selection and precaution the socalled bloodless methods compare favorably with the surgical but surgery should always be used in doubtful cases.

Farr prefers air to water or the barium mixture, as air is more elastic and apt to do less harm. This can be used under fluoroscopic control.

Wagensteen, in speaking of the non-surgical treatment of acute intussusception writes as follows: "A column of barium at a level of about three and a half or four feet should be used with gravity pressure only. The barium indicates the defect and at the same time affords a visual test of whether or not reduction is complete. The only invaginations that are likely of reduction by this method are the ileo-cecal and colico-colic. The ileo-colic invagination is not easily reduced by this method and it is of course of no value in enteric intussusception. When the method is ineffectual operation should be performed at once."

Asbury, in chronic cases recommends roentgen examination both by the opaque meal and enema. He reviews the literature very thoroughly and makes this statement, "The striking thing about the reports mentioned is the uniformity of the findings. With few exceptions the authors are all in accord that roentgen ray examination by opaque enema is as a rule the quickest and safest method of locating the point of obstruction in intussusception and frequently visualized the invagination; that information gained is of greatest value, and that its use does not materially delay operation."

Case 2. J. A. D., a white female, seven months old, was admitted to Highland Sanitarium at 10 a. m., December 25, 1931 with vomiting and bloody stools. The day previous, the bowels moved normally and the baby was apparently enjoying the best of health. About 8 a. m. on the morning of admission, the patient began vomiting and had one small bowel movement, soon followed by frequent, bloody movements containing some mucus.

Pain was severe at first but did not persist very long. It had been a bottle fed baby all of its life, always healthy and its diet had not been changed lately.

Physical examination made upon admission to the hospital disclosed a sausage shaped mass in left upper quadrant of abdomen. Very little tenderness and rigidity were noted. Roentgen examination: Fluoroscopic examination was made immediately after admission to the hospital. The barium enema consisting of barium sulphate incorporated in an oil emulsion was admitted through a soft rubber catheter attached to the enema can. The flow was started with the can very low, and as the colon filled, the can gradually elevated until it was two or three feet above the level of the table. The enema was admitted without hindrance until it reached the splenic flexure, where there was marked hesitation in its progress. Upon increase of pressure by raising the enema can the obstructing mass was seen to recede toward the hepatic flexure for a distance of three or four inches. It showed the U-shaped appearance usually seen in intussusception. By lowering the enema can the clysma was quickly evacuated and the invaginated mass could be seen to follow to the splenic flexure. This procedure was carried out two or three times but the clysma never did get past the middle of the transverse colon. Upon removal of the catheter, practically all of the clysma was quickly evacuated.

Roentgenological diagnosis: "Intussusception with invagination extending to splenic flexure." No films were made. After the roentgnray examination the patient was immediately taken to the operating room. The time elapsed between admission to the hospital and appearance in the operating room was less than thirty minutes, during which time the roentgenray examination was completed and the roentgenray findings reported to the surgeon.

Operation: Under ether anesthesia, a right rectus incision was made and the abdomen opened in the usual manner. An intussusception was found, the apex of the mass being almost to the splenic flexure. The intussusception was delivered into the wound and then reduced by milking the small intestine through the ileocecal valve. About sixteen inches of the terminal ileum was telescoped into the cecum, ascending the transverse colon as far up as the splenic flexure. Bowels moved freely on the day following operation and patient had no further trouble.

Comment: This was a case of acute intussusception diagnosed clinically, verified roentgenologically and confirmed surgically, all within one hour after the patient was first seen by a physician.

Case 3. T. M. B., white male, aged five and a half months, admitted to the Highland Sanitarium, January 6, 1930, at which time its chief complaint was bloody stools and fretfulness. On the day previous to admission the baby, which had always been healthy, went to sleep at noon and at two p. m. he awakened crying and fretting. He soon went to sleep again and his parents could not arouse him. At 7 p. m. a physician was called who aroused him; he again fretted a while and went back to sleep. At 2 a. m. the following day he awoke vomiting and in thirty minutes vomited again. At 5 a. m. he had a bowel movement which contained a large amount of blood. At 9 a. m. an enema was given which returned with a large quantity of blood. Temperature at this time was 100° F. Physical examination showed a well developed, well nourished child acutely ill, fretting, and at intervals passing stools that contained large quantities of blood. The abdomen showed marked tenderness and rigidity which was general but most marked over the right side. No masses were palpable.

Referred to the author for roentgen examination of the colon, January 7, 1930. Report of roentgen findings: The barium oil emulsion clysma is readily admitted until it reaches the proximal portion of the transverse colon at which time the child begins expelling it. The enema can was elevated and lowered for several times and finally the clysma was seen to penetrate to the hepatic flexure. Any undue pressure upon the abdomen during the admission of the clysma caused its immediate expulsion. At no time during this examination could the barium column be forced past the hepatic flexure, at which point there was a definite U-shaped filling defect. A considerable quantity of gas was present in the terminal ileum at this time. Soon after the roentgen examination the baby was very much better and all symptoms less noticeable. He remained in the hospital for three days and was dismissed as improved.

On January 17, 1930, the patient was referred for roentgen examination of the gastro-intestinal tract with the barium meal. The stomach showed no filling defect but there was a very definite pyloro-spasm which gradually subsided as the stomach filled. Examination made at six hours shows stomach empty with only a small amount of the meal in the terminal ileum. (The patient vomited quite a bit). Twenty-four hour film and observation showed the gastro-intestinal tract entirely empty of the barium meal.

January 19, 1930 another roentgen examination was made of the colon by use of the barium oil emulsion clysma. Findings: Colon fills readily with the clysma up to the hepatic flexure; upon manipulation the ascending colon was made to fill and the head of the cecum was seen to fill under fluoroscopic screen but none of the clysma was seen to pass through the ileocecal valve. Films

made before the evacuation of the enema show a very definite U-shaped filling defect in head of cecum. A film made immediately after the evacuation of the enema shows a U-shaped filling defect still present in the ascending colon with a small amount of the clysma present in the descending colon, sigmoid and rectum. The patient had a return of symptoms two days following this examination, was readmitted to the hospital, January 23, 1930 and underwent an operation on that date. Operative findings: Ileocecal intussusception with invagination of the terminal ileum into the colon for a distance of about eight or ten inches. The intussusception was reduced and the patient recovered. He has had no recurrence and is now in good health.

Comment: This was undoubtedly a case of recurrent or so-called chronic intussusception which was at least partially or temporarily reduced by the administration of the barium clysma upon two different occasions, only to recur, and the patient would probably have died had not surgical operation been performed. In this case the clysma was of very definite value both as a diagnostic and therapeutic agent.

Case 4. B. L. W., white female, aged 2 years, admitted to the Highland Sanitarium May 16, 1932 at which time she was crying and fretting continuously. No bowel movement within fifteen or twenty hours. On May 15 she had five bowel movements but in the evening suddenly began to scream as if in acute pain and continued to cry all night. Enemas were given with no result. Castor oil was given but quickly vomited with no beneficial result. Physical examination the day of admission was very unsatisfactory as patient was struggling so violently.

Roentgenray examination: The barium enema was given under fluoroscopic control; very definite hesitation of the flow was noted in the proximal sigmoid, giving the impression of an almost complete obstruction. The enema was quickly evacuated. Two more attempts resulted in rapid expulsion of the clysma. A fourth attempt with gradual elevation of the enema can and gentle manual massage resulted in the removal of the obstruction with an upward passage of a U-shaped mass as far as the hepatic flexure, at which time the greater portion of the clysma was again evacuated. A diagnosis of intussusception was made and immediate operation advised.

The patient was transferred from the fluoroscopic room to the sanitarium and while being prepared for operation had a good bowel movement. The operation was temporarily deferred but the child remained in the sanitarium until the evening of the following day at which time she was feeling fine and bowels were moving normally without discomfort. She was allowed to leave the sanitarium but advised to return upon the recurrence of any symptoms. She has had no recurrence and is still well to date.

Comment: This was undoubtedly a case of ileocecal intussusception with invagination up to the proximal sigmoid which by persistent effort was seen to be reduced back to the hepatic flexure by use of the barium enema under fluoroscopic control. Although a considerable amount of the clysma was evacuated during this examination a sufficent quantity of the clysma evidently passed on to the head of the cecum resulting in the complete reduction of the invagination.

Case 5. M. L., white female, nine months old, was referred by Dr. C. H. Webb on October 15, 1933 for roentgenray examination of the colon on account of a suspected intussusception. Several hours previously the child had suffered with cramping pains in abdomen and had passed bloody mucous stools. The barium oil emulsion enema was administered under fluoroscopic control and distinct hesitation was first noticed at the splenic flexure where there was a very definite U-shaped filling defect noted. By gentle massage and very gradual increase in flow pressure, the transverse colon was slowly filled with a visible recession of the invaginated gut noted. By persistent effort the clysma was made to fill the gut back to the ileocecal valve and a small quantity passed through the valve into the ileum. The child was allowed to rest and in a few minutes another fluoroscopic examination was made which showed complete filling of the colon with a considerable quantity of the clysma in ileum. None of the barium enema was evacuated until more than one hour after the examination. The patient has remained well since.

CONCLUSIONS

1. The barium enema under fluoroscopic control is indicated as a diagnostic procedure in acute, sub-acute and chronic cases of intussusception.

2. It is of very definite value in the treatment of certain types of acute and sub-acute intussusceptions of the colon.

3. It should be employed conservatively as a treatment agent and used with care and a recognition of its limitations.

4. Surgery is indicated when this method of treatment fails.

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DISCUSSION

Dr. C. H. Webb (Shreveport): It may seem presumptuous for a roentgenologist man and a pediatrician to present a paper before the Surgical Section advocating non-surgical treatment of a condition which is generally considered as requiring surgery. Some of you may feel as did Davis of Atlanta, who stated that surgery was the only treatment worth considering for relief of intussusception, and White of Texas who in 1930 mentioned other forms of treatment only to condemn them.

Non-surgical forms of treatment for the relief of intussusception have been used for many years. Jacobi, the father of American Pediatrics, advocated the use of water enemas, placing the child in a knee-chest position. Air has been used by others with the interposition of a manometer to regulate the pressure. Monrad of Denmark a few years ago advocated bloodless taxis, combining abdominal manipulation with injection of water enemas. He reported 9.5 per cent mortality in 94 cases. Koch and Oerum also of Denmark, reported a series of 400 cases in 1912, treated largely by non-surgical methods with mortality under one year of 35 per cent.

The reports with us of surgery indicate a mortality ranging from 9 to 80 per cent, with the better figures, of course, reported in recent years. Thompson had a total mortality of 24 per cent with surgery, reduced to 12 per cent if resection was not necessary. Two interesting reports come from Australia. With operative methods alone, Vickers reported a mortality of 14 per cent of 400 cases. Hypsley reported 100 cases treated by the use of saline enemas. Forty-four were reduced without operative measures and 56 required operation. His total mortality for the series was 5 per cent, which is the lowest of any large series I have discovered. The variation in mortality reports can be explained largely on the basis of time interval at which treatment was carried out. This is demonstrated by the series of Ladd and Cutler which concerned a total of 53 cases, all relieved by surgery. In those cases seen within the first 12 hours, mortality was 5 per cent, by 24 hours this had increased to 18 per cent and at 36 hours was 49 per cent.

With the use of the barium enema, as described by Doctor Rutledge, certain precautions are necessary. It should be used in the early stages before adhesions have formed or the friability of the intestine makes rupture possible. Force must be avoided, the column of fluid not exceeding 3 feet and any abdomnial manipulation should be gentle. Complete reduction must be assured by observing entrance of barium into the ileum and the case must be kept under observation for several hours, with immediate recourse to operation where there is any doubt as to complete relief.

In the case which I recently saw and which was completely relieved with this method by Doctor Rutledge, a rather characteristic symptom was observed in that the pains were paroxysmal, recurring very much like labor pains. The child was completely relaxed during the interval between paroxysms.

In conclusion, it is my opinion that barium enemas under fluoroscopic control, as advocated by Doctor Rutledge, should always be used if the case is seen within 12 hours after its inception. From 12 to 24 hours the barium enema may be used but surgery must be resorted to if there is the least question of reduction. After 24 hours I think the barium enema should be used only for diagnosis and that treatment should be surgical because of the possible necessity of resection.

TOTAL THYROIDECTOMY IN THE TREATMENT OF CONGESTIVE HEART FAILURE AND ANGINA PECTORIS*†

W. K. PURKS, M. D.
VICKSBURG, MISS.

If total thyroidectomy is to prove of unquestioned value in the treatment of congestive heart failure and angina pectoris, much will be added to the armamentarium of those who labor, often with so little of permanent success, to relieve the chronic cardiac invalid. It is therefore of utmost importance that an attempt be made to evaluate this method of treatment. This attempt must be made not only by those who initiated the method, but by more impartial critics. In its beginning, the method has offered much promise. To date the chief reports have come from the Beth Israel Hospital and the Peter Bent Brigham Hospital of Boston, Mass. Having been an interested and close observer of the earliest application of the method and at the same time being neither prejudiced for nor against it, I have undertaken an analysis of some of the current reports.

There has been some difference of opinion as to just who should be credited with suggesting this form of therapy. In this as in all medical progress, a new step is never the child of one man's brain, but represents the accumulated efforts of many. Crile suggested the possibility of such a procedure many years ago. He did not attain or seriously attempt its application. The great horde of reports of partial thyroidectomy in individuals with hyperthyroidism and co-incident or resultant heart failure have contributed much. Levine and Sturgis[1] and others have for some years past written on hyperthyroidism masked as heart disease and they contributed thereby the next step. Levine has for some years considered doing partial thyroidectomy on patients with cardiovascular disease and normal thyroids. In 1927 he observed marked improvement in a cardiac patient following thyroidectomy for supposed hyperthyroidism but whose thyroid gland was found to be normal.[2] This offered the best clinical evidence in favor of the new procedure. The findings of Blumgart and others in regard to the rate of blood flow in health and disease apparently offered a scientific basis for the new operation. It may later appear that factors other than velocity of blood flow or basal metabolic rate are of greater importance. The surgical aspects of the procedure have been worked out chiefly by Berlin[3] and Cutler.

Let us consider some of the theories of the mechanism of benefit. In 1924 Blumgart and Yens[4] began developing a method of measuring the velocity of blood flow through the lungs. Blumgart and Weiss[5] and others have since studied the speed of circulation with the following results. In 600 normal individuals it was found that the velocity of blood flow depended upon metabolic need, which in turn depended upon basal metabolic rate, that is thyroid function. In thyro-toxicosis, the velocity of blood flow is increased. In myxedema it is decreased, though there are no evidences of congestive heart failure. Patients with heart disease in a state of good compensation have normal circulation speed. Patients with congestive heart failure have a decreased velocity of blood flow, in spite of a normal metabolic rate. In a patient with persistent congestive heart failure we may not be able to increase the velocity of blood flow, the heart being unable to respond, but we can by thyroidectomy so decrease the tissue demands that the slower circulation will be adequate to the tissue needs. This explanation of the mechanism of benefit from thyroidectomy, as advanced by Blumgart, would apparently be applicable to the result in cases of congestive heart failure. Its application to the mechanism of relief in angina pectoris is a bit strained. It is true that in most though not all instances of angina pectoris, there is some evidence of coronary disease and consequently a possible decrease in the blood supply of the myocardium. If this were the only factor in the causation of angina, one might theorize that by reducing the general bodily need and the needs of the heart muscle itself by thyroidectomy the requirements might be lowered within the range of function of the coronary arteries. Coronary disease, however, is not the major factor in the causation of angina pectoris. We see in the absence

*From the Vicksburg Clinic and Vicksburg Hospital, Department Internal Medicine.
†Received for publication, June 1934.

of angina many hearts with extensive disease of the coronaries, some times to the point of almost complete occlusion. We have no indications that the velocity of blood flow is altered in uncomplicated angina. Angina pectoris is a spasmodic disease. Nervous and mental factors have been known, since the time of Heberdeen[6] to play a large part in the causation of the pain. Angina occurs in patients who have what Houston[7] calls the "spasmogenic aptitude". Angina is rare in the Chinese and the Negro. Certainly the negro has his share of vascular disease with coronary sclerosis and certainly as a laborer he must increase the tissue demands of his heart more than would attend walking on level ground on a cold day, and yet the latter effort may precipitate in the white man a violent attack of pain, even though he has less of coronary disease. Patients with angina pectoris may learn to lead a complacent, unruffled life and obtaining relief from pain subsequently do an amount of physical work not formerly tolerated.

Thyroidectomy may so alter the patient's personality as to do away partially or completely with the tendency to spasm. This is not a question of tissue demand or velocity of blood flow. In the series of patients with congestive heart failure or angina pectoris which have been reported by Blumgart, Levine and others it has been a noteworthy fact that clinical improvement has occurred within the first two weeks and often earlier. At so early a date the basal metabolism has not fallen appreciably and therefore tissue demands are not greatly changed. As one reads the report or observes the patient, it appears that the effect of the operation, as a means of psychotherapy, is considerable. This factor is hard to assay and much harder for the enthusiast who advocates the procedure than for others. The fact that improvement occurs so promptly in cases of congestive heart failure would apparently indicate that whatever improvement occurs is not entirely to be explained on the scientific basis of velocity of blood flow. However, the fact that we cannot be sure of a scientific explanation of the process does not by any means preclude further use of the method.

Levine and his associates have not held the theory that velocity of blood flow and tissue demand were of such paramount importance in explaining the benefit of thyroidectomy in cardiac disease. Indeed, their studies of velocity of blood flow indicate that no conspicuous alterations occur after the operation. In one patient, they found the velocity of blood flow faster after thyroidectomy. The same prevailed in one of Blumgart's patients (No. 3). Levine and associates incline to the theory that the effect of thyroidectomy is in some way related to reflex or humoral alterations and possibly linked up with the adrenal gland. This theory would appear more applicable to the improvement of angina pectoris following thyroidectomy than it would to the improvement in congestive heart failure.

What have the results been? The patients who have been subjected to the operation have been largely hopeless ones whose prognosis for life was poor. It is necessary to bear this in mind in evaluating results. The operative mortality has not been great, if we consider the nature of the risks. The initial report of Blumgart, Levine and Berlin[8] contained only one patient on whom a complete thyroidectomy was done. This patient, with long standing congestive heart failure resulting from mitral stenosis and insufficiency and auricular fibrillation, showed very marked improvement. In the series of eleven cases reported by Blumgart, Riseman, Davis and Berlin[9] there was one mortality. There were two instances of angina pectoris, in one of which the patient was definitely relieved. The other nine cases of congestive heart failure from various causes were all reported as improved. The authors' complete enthusiasm for the operation is obvious and in view of the more conservative results obtained in similar cases as skilfully operated and handled by Levine and his associates, it must be felt that the enthusiasm of the former authors has somewhat influenced their judgement. Levine, Cutler and Eppinger[10] have reported a study of twelve cardiac patients on whom either partial or total thyroidectomy was done. In ten the removal of the gland was complete. Improvement in six was marked, in three there was a slight to moderate improvement and one was unimproved. One died and in another the period of observation was not sufficiently long to warrant an opinion. Though only one-third

of the patients had angina pectoris, one-half of the incidences of definite improvement occured in that type of patient. In only three of the remaining eight patients with congestive heart failure did definite improvement occur. The instances of slight or moderate improvement may to a large extent be discounted for to a disinterested observer it appears that their improvement was either negligible or else largely to be accounted for on the basis of better general care during the post-operative period. Levine and his associates, in their first communication, state that the most satisfactory results were obtained in patients with angina pectoris. Their subsequent work has likewise confirmed this opinion.[11]

It is a rather striking fact that the results obtained by Blumgart and associates are such as would best conform to their theory of the mechanism of improvement and that the same is true of Levine and his associates. The latter group has been more conservative in the expression of opinion and probably less prejudiced by inherent enthusiasm for the new procedure. There is, however, in the reports of both groups enough indication of probable value of the method to warrant further use of it in well selected cases. No doubt the literature will soon contain numerous reports of application of this method of treatment. I personally doubt if it will ever be widely used in congestive heart failure, but feel that it has much to offer the patient with intractible angina pectoris.

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CASE REPORT: AN ANEURYSM OF THE ABDOMINAL AORTA SIMULATING A RENAL KIDNEY*

R. L. Gordon, M. D.

NEW ORLEANS

Mr. M. L., aged 49 years, was first seen August 24, 1933, at the request of Dr. D. V. Dongo. Past history: Pleurisy some years ago. Also had history of three minor injuries to head, leg, and thumb; and the forefinger of the left hand had been amputated. Present complaint: Gastric pain, and pain in the left kidney region which began two weeks ago after drinking a large quantity of beer. Patient also stated that he thought his kidneys were not what they ought to be for the past six months. Vertigo was also present. Heart and lungs: Showed presence of extra systoles. Abdomen: Distinct mass felt in upper left quadrant of abdomen about the size of a good size orange. Wassermann: Postitive 4 plus.

Wassermann: Postitive 4 plus. Urinalysis: Albumin 2 per cent, few pus cells, large amount blood. (This was a routine urinalysis which is always sent to the laboratory, but this was not collected until after the cystoscopic examination, which probably accounts for the blood. Cystoscopic examination: Showed nothing abnormal within the bladder. The ureters were easily seen and No. 5F catheters penetrated easily. Specimens were collected from the bladder and right and left side, which showed: Bladder, no pus, no casts, small amount blood. Right; no pus, no casts, large amount blood (trauma)? Left; no pus, no casts, many epithelial cells, no blood. Smears and cultures negative.

*Read before the Orleans Parish Medical Society July 9, 1934.

Roentgenogram with catheters in place showed the catheter stopped at the level of the sacro iliac joint on the right side. Bilateral pyelogram was made using 12½ per cent sodium iodide, which showed a marked kinking of the left ureter at the level of the fourth lumbar vertebra.

The pelvic and calices of the left kidney were markedly blurred and there was a ptosis present. The pyelogram on the right side showed the pelvis of the kidney clearly outlined and in marked contrast to that of the left. The peculiar blurring of the shadow of the pelvis of the left kidney was at first suggestive of some type of tumor, however, on second thought the idea of movement occurred to us. However, if the movement was caused by the patient breathing there should also have been movement on the right side. This was not so. Finally, so convinced were we that we were dealing with movement that the kidney was re-injected and the pyelogram made again before the patinet left the table. This showed just as before, a peculiar blurring, noted at first.

Feeling that we were dealing not with a true kidney condition, but something else, probably some type of tumor mass, probably an aneurysm that was causing movement on the part of the kidney a gastro-intestinal series was then ordered which showed: A marked enlargement of the aorta, and displacement of the pars media of the stomach on the left side and pulsating along the lesser curvature. The conclusion was an extra-intestinal pulsating tumor, probably an aneurysm of the upper quadrant.

A lateral view of the spine was also made to see if there were any erosions. This was negative, showing only hyperthrophic changes.

Patient requested to go home for a couple of days which was allowed August 25, 1933.

Re-admitted August 27, 1933, with the following laboratory findings:

P. S. T.: First hour 35 per cent, second hour 15 per cent. Urinalysis: Few blood and pus cells in urine. R. B. C. 4,500,00 hemoglobin 80 per cent, color index 89 per cent. W. B. C. 12,000, small l. 27, large l. 4, N.69, E. 0. Blood Chemistry: N. P. N. 30, urea 15, creatinin .8, sugar 95.

August 29, 1933, Dr. Longo operating, a laparotomy was performed which showed an aneurysm of the abdominal aorta extending about one inch below the junction of the aorta and the diaphragm, and from three to four inches in length and to the left. It was fusiform in type. The large, sac like, pulsating tumor with each beat of the heart, due to the fact that it was lying practically on the left kidney caused enough movement of the kidney and kidney pelvis to throw such a bizarre and unusual shadow of the pyelogram that you have just seen.

I wish to thank Dr. Longo for the permission to present this case, and also to thank Drs. Fortier and Gately for the interest they took in working this case up with us.

THE DISAPPEARANCE OF CREATINURIA AFTER LACTIC ACID THERAPY*

GEORGE FASTING, M. D.
NEW ORLEANS

O. M., a white man, thirty years of age, was admitted to Charity Hospital in September, 1933 with a condition diagnosed as post-encephalitic Parkinson's syndrome. In 1918 the patient had suffered a severe attack of influenza. There were no immediate sequelae. In 1925 he noticed a tendency to drooping of the upper eyelids and drooling at the mouth. A year later, bodily stiffness developed. He continued with farm work until 1931. Body stiffness, closure of eyelids and difficulty in speech progressed.

Very slight symptomatic improvement followed the administration of stramonium and small amounts of ephedrine. Repeated urinalyses revealed an average daily output of 230 mg. of creatine. A four-weeks' course of glutamic acid, 10 grams once a day, resulted in negative creatinuria at the end of the period. On two separate days during glutamic acid therapy, encouraging functional improvement was manifested.

A month later, lactic acid, U. S. P., was given orally, 8 cc. t. i. d. immediately after meals for one week. The urine again became free of creatine for several days. A second trial of lactic acid four weeks later, again resulted in negative creatinuria with occasional breaking through of creatine, about 40 mg. in 24 hours.

The patient is now being maintained on lactic acid in addition to his general diet. Administration of stramonium and ephedrine is being continued. During the short periods of lactic acid therapy no startling functional improvement has been noted; there appears to be a better sustained contractile action of

*From the Departments of Pathology and Bacteriology of the Medical Center of Louisiana State University and of the Charity Hospital, New Orleans.

extensor muscles. Negative creatinuria with intermittent elimination of creatine has taken place.

Lactic acid in the same amount after meals was then suggested to a patient with Parkinson's syndrome, and creatinuria. This patient had found a dosage level of stramonium and ephedrine under which he was functioning fairly well, although apparently the creatinuria was not affected. After 15 days on added lactic acid, he reports an "awareness of increased steadiness in the hand except under strain," and a steadier gait is reported by observers. No further data on creatinuria are available here.

The use of lactic acid in creatinuria suggested itself because it is part of the chain in muscle metabolism. It was administered after meals with the expectation that the liver would be so saturated with food substances that the lactic acid might either be shunted or passed through.

It is difficult to explain the results obtained thus far on a purely carbohydrate basis. Might not the explanation of the action of ingested lactic acid need amplification similar to that being demonstrated for certain amino acids?

SOME LAXATIVE FOODS

OSCAR W. BETHEA, M. D.†
NEW ORLEANS

In the treatment of constipation, such aids as habit, exercise and the taking of sufficient water are often neglected.

The value of laxative foods is generally recognized, but seldom accorded adequate attention. We are inclined to rapidly name over a dozen or more items that occur to us, but few of which are remembered by the patient. Especially do we tend to concentrate upon one or more favorites, such as bran or raisins, overlooking their limited field of usefulness and their possible dangers. In an effort to prepare for my patients a larger list of foods having a laxative tendency from more than one pharmacologic standpoint, I compiled the following which I have had multigraphed for distribution when occasion demands:

Water, fruit juices.

Fruits, raw—Figs, berries, organges, grapefruit, pineapple, apples, peaches, apricots, pears, grapes, raisins, prunes, dates, watermelon, fruit salads.

Fruits, cooked—Prunes, peaches, apricots, apples.

Vegetables—Lettuce, cabbage slaw, celery, raw carrots, tomatoes, spinach, turnip greens, Brussels sprouts, cauliflower, fresh beans, peas, corn, okra and vegetable soup.

Breads and cereals—Whole wheat bread, rye bread, corn bread, whole wheat cereal, oatmeal.

Buttermilk, cream and butter.

Oil dressings, honey.

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CENTENNIAL OF MEDICAL EDUCATION IN NEW ORLEANS

On the night of January 7, there will be held in Dixon Hall a meeting to commemorate the centennial of the beginning of medical education in New Orleans. This meeting well deserves more than passing notice. In the hundred years that have elapsed since the founding of the Medical College of Louisiana in 1834, six thousand four hundred and forty-seven graduates from this school have lived, practiced, and many of them died in the South. A few of these men have gravitated to the North, to the East, and to the West, but a great majority of them have confined their medical activities to the Southern states and notably the State of Louisiana. These men have been a remarkable influence for good, and of tremendous assistance to the peoples amongst whom they practiced. Just how much it has meant to the far South to have these graduates practicing in this section is difficult to evaluate. The commemoration of this event is an evidence of what many assume to have been an occasion of incalcuable benefit to the Southerner. More than six thousand doctors in the one hundred years that have elapsed since the inception of medical education in New Orleans have gone out in the world to take care of the colds and the coughs, the malaria and the yellow fever, the child births and the operations of their patients. Conservatively estimating, it is quite likely that several million people have been cared for and helped by these physicians.

The meeting, coming as it does on the first Monday of January, falls exactly on the corresponding date in 1835 when the school opened. It is true that the preliminary establishment of the school took place in 1834, but the formal opening was the first Monday of the next year. The Medical College of Louisiana later became the Medical Department of the University of Louisiana, which was started in 1845. The Medical College became affiliated with the State University in 1847, and subsequently in 1884 became the first university department of Tulane.

It is interesting to speculate upon how much was taught to the students of one hundred years ago. Their course was almost entirely a lecture course, and according to Fossier the course of lectures lasted for a period of about four months. Aside from a certain amount of dissection the student learned only from the second hand information conveyed to him by his professor. After about four months of training in the first year, and four months in the second year, he was believed competent to practice medicine. Subsequently the course was increased to three years. The student could select the lectures he wished to attend or he

wished to avoid. He could take them as they came and he could leave those he did not consider interesting. About the only definite qualification he had to have to graduate was that he should be registered in the medical school and in addition that he should be past the age of twenty-one. Times have changed. In the last hundred years there has been a tremendous accretion to pre-existing medical information. A student now spends many years obtaining his medical education. How different in those days of a century ago when a series of lectures was considered sufficient to give a man about to enter the practice of medicine a knowledge of what he should do when disease presented itself.

But in 1834 medicine was largely a dogmatic science. Pasteur at that time was a boy of twelve. Knowledge of bacteriology and infectious diseases was nil. Lord Lister was a seven year old scion of a London wine merchant and was thinking juvenile thoughts and not about aseptic surgery. The great Koch was not to come until ten years later, and Charchot was a lad of nine. Laennec's influence was just beginning to be felt. In 1834 chloroform was first discovered. Specialists were virtually non-existent, and a graduate of medical school was called upon to do anything, and everything, in medicine, surgery, and midwifery.

In the past one hundred years there has been added to medical knowledge more than in all the centuries in which medicine has existed. The then new-born Medical College of Louisiana has faithfully served to disseminate this information and knowledge which has been obtained in the last century. Its thousands of graduates, physicians, teachers, public health officials, and what not, have played a most important role in teaching the embryo doctor and the laity. Theirs has been a very real influence on the health and life of the South. They make us proud of our City and State.

BANTI'S DISEASE AND SPLENOMEGALY

Larrabee* has written a rather suggestive paper which may be of interest both to the surgeon and to the internist. This presentation deals with the well recognized fact that Banti's syndrone is only extremely rarely seen. A condition of enlargement of the spleen, gastric hemorrhage, leukopenia, and hypochromic anemia, without evidence of symptoms suggestive of such conditions as leukemia and hemolytic jaundice very broadly makes the diagnosis of Banti's disease, but this clear cut syndrome rarely appears and certainly the last criterion for diagnosis, the pathologic appearance of the spleen, is such that the pathologist rarely makes the diagnosis even if the clinician has labeled the entity, splenic anemia. The important feature of Larrabee's communication is that, in a very considerable number of instances, in spite of the fact that the picture is not that of the classic Banti's disease, but splenomegaly does exist, the condition from which the patient is suffering can be alleviated and materially helped by removal of the spleen. His observations show that in most of these instances there has occurred chronic congestion of the organ, which may be due to a number of causes such as perisplenic adhesions or cirrhosis of the liver. Any of these disorders, intra-abdominal lesions obstructing the venous outflow of the spleen, may be materially helped by taking out this organ. Splenectomy is definitely indicated irrespective of the fact that the condition may not be that of splenic anemia. The results are splendid in patients who have not been operated upon too late in the course of their disease. The splenomegaly is of course removed and the blood abnormalities that occur for example in cirrhosis of the liver return to normal. Splenomegaly alleviates the portal congestion to a certain extent and the operation helps to set up by-passages for the discharge of the portal blood into the systemic circulation.

The ideas advanced by the author certainly warrant further study. They offer to the patient sick with splenic anemia or with chronic congestive splenomegaly the hope of benefit over a long period of time, if not an actual cure.

*Larrabee, Ralph C.: Chronic congestive splenomegaly and its relationship to Banti's Disease. Am. Jour. Med. Sci., 188:745, 1934.

HOSPITAL STAFF TRANSACTIONS

MINUTES OF MEETING OF MERCY HOSPITAL STAFF

The regular monthly meeting of the Mercy Hospital Staff was held on November 15, 1934. The scientific program was first presented, Dr. Maurice Campagna presenting several clinical cases which he had presented at a previous meeting last year.

The first case was a woman 55 years of age who had a heart lesion as well as a syphilitic condition. The patient had received antileutic treatment. At the present time she is a very hard working woman, her appearance is splendid, still with an electro-cardiogram reading her prognosis was extremely grave; she had a two to one block. It was brought out by Dr. Campagna that under the circumstances with some cases it is extremely hard to give a prognosis even with an electro-cardiogram reading.

The second case presented was a case of a male patient who had a positive Wassermann with auricular fibrillation. This patient was admitted into the hospital with fibrillation a year ago and the heart is still fibrillating at the present time. The heart shows an actual diseased condition. He has also had trouble with his eyes which showed evidence of syphilis. The salvarsan used in the treatment of this patient does not help the heart condition at all. His Wassermann is negative at present and he has been taking digitalis constantly. Here again is another case which by clinical demonstration gave evidence of a grave prognosis and still the patient is able to get around very comfortably.

Another discussion was of a patient 33 years old in which the patient complained of gastric distress and an electro-cardiogram reading showed marked myocardial disease. The patient is being rested at the present time after which a recheck on the reading is going to be made. If this check should show the same condition, the patient, in the author's opinion, should be warned of seriousness.

The last case was one of a man who had been in the World War. He complained of pains around his heart, faint feelings and long sighing respirations. This condition is spoken of as neuro-circulartory asthenia characterized by low blood pressure. The electro-cardiogram does not show anything wrong with the heart.

The mortality sheet was then read after which Dr. Hauser discussed two deaths.

The first case was one of an incomplete abortion. The heart on physical examination was negative. The vaginal examination demonstrated an eroded cervix which was dilated. a D & C having been performed before admission and the patient packed. The treatment given was vaginal and intra-uterine douches. The blood count showed a count of 40,000 leukocytes. The patient had a septic temperature. She developed thrombophlebitis of the left leg. A blood culture showed a hemolytic streptococcus being present. Blood transfusions were given and auotgenous vaccines were given. The patient did not respond to treatment and died, the diagnosis being: Cerebral embolism, streptococcic speticemia.

The second patient died on October 6, after having been ill eleven days complaining of pain in the lower extremity, diagnosed as a probable neuritis. The temperature chart showed a septic temperature. The patient complained of weakness, not being able to void for two days. The patient was jaundiced, temperature 104° and very toxic.

The blood count showed 2,200,000 total red cell count, 4,000 whites, 11 small, 89 neutrophiles. Estivo autumnal rings were found in the smear. The patient died six days after admittance. The patient was given atabrin, quinine hydrochloride and transfusion of blood. An autopsy was obtained which showed mesenteric glands enlarged, spleen enlarged and congestions in the right lung.

Edwin L. Zander, M. D.—Secretary.

NORTHEAST MISSISSIPPI HOSPITAL STAFF MEETING

The Northeast Mississippi Hospital Staff met in regular session in the dining room of the Holley Hotel, at 7:30 P. M., November 5. After partaking of a bountiful supper, with Drs. Christian and Caldwell as hosts, the president, Dr. McDougal, called the meeting to order.

The minutes of the previous meeting having been read and approved, the business of the club was set aside and the time was given to the honored guests, Drs. Felix J. Underwood and George Riley of Jackson.

Dr. Riley, the first speaker, gave a very instructive paper on malaria setting forth its incidence and control. Complete statistics of the morbidity and mortality in Prentiss County compared favorably with figures for the state at large. From the reports of the doctors over the state the most successful treatment for the eradication of malaria was atabrine.

Dr. Underwood gave a talk on several subjects that concerned the medical profession. He stressed emphatically the importance of co-operation among the medical profession making reference to the work of this society along this line. He stressed the laxity of various medical schools in the teaching of materia medica and pharmacology, reading portions of letters from presidents of boards of examiners, showing that weakness prevails in most of the schools of the United States and Can-

ada. He also discussed at length the proposed work of the Committee on Economic Security.

We felt fortunate in having with us at this meeting these two outstanding medical men, and in being the recipients of these two well read papers. We extend them an invitation to come again.

We had a short talk from Mr. McClure, field representative of the Tennessee Valley and Tombigbee project. He surely knows his subject, regarding this project of by-passing the waters of aforesaid rivers.

The staff of the Northeast Mississippi Hospital met in regular session at the Holley Hotel, December 3. After enjoying an oyster supper, the house was called to order by the president, Dr. McDougal. After reading and adoption of the minutes of the last meeting Dr. W. H. Sutherland was given the opportunity of making to the society a report of his trip to Boston, Philadelphia, and other cities of the northeast. He reported that the transplanting of thyroid tissue from hyper- to hypothyroid patients had been accomplished and was a real success.

After his report we had a summary of the attendance for the past year of the staff of the Northeast Mississippi Hospital. The average attendance was 75 per cent. We believe this is a favorable attendance, when you take under consideration that most of the doctors are general practitioners, and subject to calls at any time.

The election of officers was held at this time. The result of the election was as follows: Dr. W. V. Davis, president; Dr. G. LeRoy, vice-president; Dr. R. B. Cunningham, secretary and treasurer.

W. W. Strange.

VICKSBURG SANITARIUM STAFF MEETING

The regular monthly meeting of the staff of the Vicksburg Sanitarium was held on December 12 with eight members and three guests present. Dr. G. M. Street, president, presided. After the business of the staff and reports from the records department and analysis of the work of the hospital, Dr. F. Michael Smith, Director, Warren County Health Department, made report of vital statistics for the month.

Special case reports were presented as follows:

(1) Gastro-Jejuno-Colic Fistula—Surgical Repair.—Dr. A. Street.

(2) Jaundice.—Dr. J. A. K. Birchett, Jr.

(3) Fracture of Base of Skull and Multiple Fractures of Bones of Face, with Recovery.—Dr. R. A. Street, Jr.

Dr. G. C. Jarratt made a report of the recent meeting of the Southern Medical Association at San Antonio.

For the cancer clinic, Dr. A. Street reported a case of squamous cell carcinoma of cheek (Grade III).

Selected radiographic studies were presented as follows: Subdeltoid Bursitis; Calcified Small Vessels of Legs; Calcified Juadriceps Tendon; Aneurysm of Thoracic Aorta; Pulmonary Tuberculosis (2 cases); Cholelithiasis; Gallbladder Dye Filling Simulating Calculi; Carcinoma of Colon; Gastro-Jejuno-Colic Fistula.

The meeting closed with a lunch.

The next meeting of the staff will be held January 10, 1935.

Leon S. Lippincott,
Secretary.

Abstract.—Fracture of Base of Skull and Multiple Fractures of Bones of Face, with Recovery.—Dr. R. A. Street, Jr.

Patient.—White male, aged 22 years. Brought to the hospital September 15 at 8:50 A. M., in an unconscious state, bleeding rather freely from the mouth and nares and with stertorious breathing. It was reported that he had turned over his truck about seven miles this side of Port Gibson about 6 o'clock that morning. He was found shortly afterwards unconscious and with general condition similar to that observed when he was brought to the hospital. He was first taken to Port Gibson and then brought to the hospital in an ambulance immediately.

Physical Examination.—Temperature 97.4° F., pulse 100, the volume being weak. Blood pressure systolic 110, diastolic 60. Respiration 26, quite labored and difficult. Well developed and well nourished. Bleeding from the nose and mouth moderately. Laceration of scalp in right occipital region about four inches long and one-fourth inch deep. Another laceration of scalp above the right ear about one inch long and one-fourth inch deep. No bleeding observed from either ear. Right cheek and right forehead badly swollen and discolored, and the right eyeball protruding slightly, with marked ecchymosis of all tissues in orbit from profuse subcutaneous hemorrhage. Jaw sagged down, and there was bony crepitus of the mandible on the left side and in the lower central portion. Hard palate had a visible lacerated area near its center, and upper teeth on both sides were visibly out of line and movable, but none seemed to be broken or extremely loose in the sockets. Entire superior maxillary bone was movable and right half was separated from left half, the fracture coming through the hard palate to the left of the median line and through the alveolar process between the left bicuspid and central incisor teeth. Cerebrospinal fluid and blood trickled down postpharyngeal wall continuously. Numerous moist rales over the lung areas with harsh breath sounds. No fractures of ribs noted from physical examination. No other remarkable findings in the physical examination.

Laboratory Examination.—Hemoglobin 82 per cent, erythrocytes 4,330,000, leukocytes 15,300 with 85 per cent polys, no malaria found; urine was es-

sentially negative with rare casts and blood cells. Roentgenogram failed to show fracture of base of skull, but demonstrated multiple fractures of mandible and maxilla.

Course in Hospital.—Patient immediately put to bed, foot of bed elevated. He was given 400 cc. of 20 per cent glucose in the vein and shortly after five grains caffeine sodium benzoate, the latter being combined with 1-150 grain atropine sulphate, and these were repeated as necessary for the first few hours. The patient became progressively worse and all hope of his recovery was abandoned. He was given morphine, grains 1/6, and atropine, grain 1/150, by hypodermic as necessary for restlessness. Given 500 cc. citrated blood that afternoon. Some general improvement followed transfusion; pulse volume and rate improved, but there were no signs of returning consciousness. Glucose intravenously was given every 12 hours on second and third days. On third day patient had sufficiently recovered his faculties to talk in an incoherent way and was able to swallow small amounts of liquids. During this time intranasal treatment toward controlling infection was directed by consulting nose and throat specialist, Dr. H. H. Johnston. The roof of the mouth and soft palate were gradually becoming more and more edematous and discolored and it appeared as though considerable sloughing would take place. Frequent hot saline irrigations of mouth were instituted. By the end of the first week the mental state was reasonably normal, the pulmonary congestion had cleared up, and patient was taking liquid now by mouth at regular intervals. Up to this time, the nares had been completely blocked by blood clot and edema, and no attempt at reduction of fractures was possible. At end of second week the nasal obstruction had been relieved so that patient could breathe through nose without undue difficulty.

Consulting dentist and oral surgeon, Dr. A. G. Tillman, Jr., began the reduction of fractures. After numerous attempts, without success, the upper and lower teeth were finally approximated and successfully held in normal position. Metal bands were placed around the two teeth on each side of the fracture through the superior maxillary bone, and by manipulation the fragments were brought in line and held in apposition by wiring across gap from the metal bands on either side. The fragments of mandible were approximated in the same way. Then the upper and lower teeth were wired to each other. Upward traction was instituted by a padded chin piece, attached on either side to heavy elastic across top of head, and bringing mandible firmly against superior maxilla. These elastic bands were maintained by being incorporated in a tightly fitting skull cap. This was a most tedious and difficult procedure, but was very neatly accomplished by the dentist.

The wounds of the scalp healed without difficulty. On October 10 patient was allowed out of bed and was discharged from the hospital on October 12. For the next two weeks he was seen in out-patient department at frequent intervals and visited dentist's office, from time to time for necessary adjustment and tightening of wires.

Eight weeks from time the wiring was accomplished, the wires between upper and lower teeth were removed and motion permitted in lower jaw. The metal bands and wiring of lower jaw have been entirely removed and good union obtained. The wiring between metal bands in the upper jaw have not been removed. There is firm union between right half of superior maxilla and bones of cranium, but still slight motion of left half of superior maxilla. The mouth can now be opened so that palate can be observed, and there is an opening between nasal cavity and mouth on left side, which is oblong and approximately one-half inch across and one inch long. Through this opening several sequestra have been removed and it apparently is getting smaller by cicatricial contraction.

At a later date, when firm union has been established and purulent discharge ceases, plastic surgery will be done in an attempt to close cleft in hard palate.

The patient is back at work and general physical examination seems to be normal.

Final Diagnosis.—Fracture of base of skull; multiple compound comminuted fractures of mandible; multiple compound comminuted fractures of superior maxilla; cerebral concussion and hemorrhage into cerebrum; contusion of face; contusion of eyeballs; lacerations of scalp.

TOURO INFIRMARY

The regular monthly meeting of the Medical Staff of Touro Infirmary was held Wednesday, December 12, 1934, at 8:00 p. m., with Dr. Sidney K. Simon, Chairman, presiding.

Dr. Allen Eustis showed and discussed a patient who had been seen by himself and Dr. Ochsner. This man had presented a large abdominal mass which was thought to have been a very large spleen. At operation, however, it was found that this mass was not a spleen but a large mass of omental tumors. The peritoneal cavity was filled with about 2,000 cc. of a gelatinous mucoid material. The masses involved the lesser curvature of the stomach and there were profuse metastases elsewhere. A section of one of these tumors showed that the process was a colloid carcinoma probably originating in the stomach. This patient had had no gastro-intestinal symptoms and the gastro-intestinal series made about a year previous had been entirely negative. Dr. Lanford showed photomicrographs of similar pathologic processes. The presentation was discussed by Drs. Johns, Lemann, and Simon.

Dr. Henry Blum spoke on four cases of cataract. All were hypermature with various complications. These complications consisted of liquefaction with displacement of the nucleus of the lens, post-operative hemorrhage, and attachment of the lens to the iris with escape of the vitreous at operation. The cases were discussed by Drs. Pitkin, Weil, and Lyons.

There then followed a motion picture entitled "The Science and Art of Obstetrics", prepared by Dr. Joseph De Lee and shown through the courtesy of the Petrolagar Company.

The Program Committee presented for discussion two cases of unusual interest with autopsy findings. One was a case of acute myelogenous leukemia and the other a case of death following bipolar ligation in a toxic thyroid in a male 22 years of age.

Willard R. Wirth, M. D.

J. T. NIX CLINIC
New Orleans

At a meeting held in December, Doctor Manuel Garcia presented the following paper.

THE ROLE OF RADIATION IN THE MANAGEMENT OF CANCER OF THE RECTUM

The nature and clinical course of cancer of the rectum necessitate the employment of all available methods of attacking malignancy,. To what degree radiation can be of service remains to be fully determined. The following impressions were gathered from a review of some recent authoritative articles dealing with the curative and palliative treatment of rectal carcinoma.

In malignancy of the terminal bowel there are certain factors which militate against the success of any line of therapy. Diagnosis is in many cases made late. Early symptoms are vague, patients waiting an average of four months before consulting a physician. Hemorrhoids are frequenly associated and all too often held to be responsible for the patient's complaints, further delay in recognizing the true nature of the malady resulting therefrom. The growths are liable to infection, and chronic sepsis must be contended with. Metastases occur early.

The last is by far the gravest feature of the disease. Contrary to what might be expected from the clinical benignity of rectal new-growths, Miles states that with adenocarcinomata "it is a common experience to encounter widespread dissemination in the perirectal tissues and even in the abdominal cavity in clinically early examples of the disease; so that it seems that these carcinoma cells become detached from the primary growth almost synchronously with its inception". The venous radicals have been shown to become invaded by masses of cancer cells. These are swept away and are carried to the liver since the rectal veins belong to the portal system. Such extensive ramification of the draining lymphatics exists, that secondary tumors are possible in an enormous area. In the downward zone of spread, the structures which may be invaded are the perianal skin, the ischiorectal fat and the external sphincter. The lateral zone comprises the levator ani and coccygeus muscles, the pelvic peritoneum, the prostrate gland, the base of the bladder, the cervix uteri and the base of the broad ligament. The upward zone is constituted by the paracolic glands, the pelvic mesocolon, the aortic glands.

In the cure of carcinoma of the rectum the goal sought is the complete extirpation of the tumor and all the tissues wherein metastases might have possibly occured. This ideal of completeness has to be sacrificed frequently because the condition of the patient does not permit the ablation of massive areas of tissue, or because the spread is so extensive that no matter how radical the mutilation there is no possibility of eradicating all the neoplastic cells from the body. However, where cure is unattainable, prolongation of life may be obtained, or simply greater comfort for the period of survival. In securing these objectives both surgery and radiation have been tested and found of distinct service.

Lockhardt-Mummery is of the opinion that "the chief handicap to curing rectal cancer is not bad treatment but late diagnosis". Fully 75 per cent of his early cases (no extrarectal involvement) survived the five-year period. And in a group of 209 consecutive cases he obtained 52 per cent five year cures by permanent colostomy followed by perineal resection with a primary mortality of 7 per cent. His patients were carefully selected as to operability but some of them had serious extraneous disease. This probably represents the best results that surgery can offer, though it is not the most radical operation. The Miles procedure has the lowest recurrence rate, 29 per cent. But it is a surgical feat of the first magnitude. In his hands (Miles') it has an operative mortality of 10 per cent but in less expert hands this becomes doubled or trebled. Miles believes that an attempt to excise a cancerous rectum solely from the perineum is as futile as amputating a breast, the site of malignancy, without also clearing the axilla of the lymphatic nodes. Therefore excision must include the upward as well as the lateral and downward zones of spread. He does a permanent colostomy and an abdominoperineal resection in one stage. Hence the high mortality. For this reason multiple stage operations are generally preferred even at the cost of increased recurrence. Deaver recommends Lockhardt-Mummery's for the average surgeon.

It is apparent from the above that even in the hands of the most expert surgeons, under the most favorable circumstances, curative results still fall short of the level desired. Whether radiation

combined with surgery yields better results can not yet be positively denied or affirmed. Bingley believes that such a combination has not received a fair trial. As a matter of fact, irradiation has been employed as a measure of last resort and in a very unsatisfactury manner except in a few clinics. This is surprising in view of the relatively large percentage of cases that necessarily must come under the care of the radiotherapist.

Unfortunately, the factor of delay, the advanced age, and the feeble state of some of the patients are responsible for a diminution of operability rate to between 40 and 50 per cent at the time the cases are first seen by the surgeons. Local extension to neighboring organs, fixation to the sacrum, extensive non-inflammatory regional adenopathy, distant metastases (liver, peritoneum, bones), poor general condition and age below thirty, all contraindicate surgery. With these cases, as well as with the patients who have recurrences following surgery, radiation must be tried as palliation.

The types of cancer found in the rectum are not favorable for radiation, except those of the anal mucocutaneous junction which are squamous epitheliomas. These however are not to be considered in this discussion. Carcinoma of the rectal canal is of the glandular type, and is derived from the cylindrical cells of the follicles of Lieberkuhn. Being fairly well differentiated, these cells are susceptible to radiation little more than normal cells. In some cases the growths are fibrotic, of the scirrhus type, also unfavorable for radiation. Some atypical colloid and melanotic types may be more sensitive, as well as those of the more anaplastic, grades III and IV of Broder's classification. In all cases irradiation to be effective must be heavy and quite destructive.

In spite of this, cancer of the rectum has been cured with radium. In one case reported by Guibal, a 50 mg. tube heavily screened was left in the rectum for seven days and effected a cure for eight years. Four five-year cures are reported by Binkley. One was an obese woman with a grade III tumor. She received external radiation with X-ray followed in a few weeks by 150,000 milcurhrs. with the radium pack, and a month later 73 ms. in gold radon seeds were implanted interstitially. The others received equivalent amounts of radiation. Nevertheless, it must be stated that no method has thus far been devised which can effect a cure in a number of cases comparable with the number obtained by surgical means.

In fact, many are opposed to any method of radiation at all, on the grounds that no benefits are produced and the complications of radiation may add to the discomforts of the patient. No cures were obtained in a series of 49 cases treated by radium between 1919 and 1929 at the Radium Institute of Paris. Five patients were treated by the intracavitary method and received little benefit, though one survived for twenty-six months. Radium implanted transperineally or through the rectal surface of the tumor produced longer survival periods but no cures. Dissection from the perineum and implantation of radium in the rectal growth was also tried but the method was abandoned as it gave rise to complications and was less effective. Definite improvement without undesirable side actions was obtained by radiation with the four-gram radium pack. The same may be said of external radiation with X-ray. Both methods appeared to prolong the life of the cases.

Gabriel reports ten cases which fared poorly with radium needles applied interstitially through the rectum or the perineum. He believes vascular embolism may result from the insertion of the needles. Sepsis and fistulae are possible sequels. Abdominal radiation is considered too risky as it is accompanied by a high operative mortality. There is little likelihood that an established recurrence will be more than temporarily improved by interstitial needling.

These gloomy views are offset by the work of Binkley at the Memorial Hospital of New York. His is probably the most rational and analytical study of the problems met with in this field. Like Kaplan, he believes that the limitations of surgery require the employment of radiation and that combining the two yields better results than either method alone, for radiation can attack cells which are inaccessible with the knife. Careful selection of cases is the secret of improved results, as no routine is uniformly successful. By judicious resort to various lines of attack the percentage of clinical cures has been increased and much greater palliation has been afforded in incurable cases.

Cure by radiation can be attempted in operable or inoperable cases where the growth is easily accessible, of the more radiosensitive types, with little secondary infection and good general condition of the patient. The period of hospitalization is less and 50 per cent of the cases retain a functional rectum.

Where radical surgery seems to offer the best chance, as in high growths, in the operable stage, external radiation is employed as a valuable adjunct.

Usually, however, surgery and radiation are employed in the following sequence: preliminary external radiation, colostomy, interstitial radiation of the tumor, and perineal resection.

External radiation produces clinical improvement in nearly every case, as a gain in weight is usually observed, rectal discharge decreases, the tumor becomes smaller and more movable and the patient feels stronger and has a more cheerful attitude. This effect is possible without intensive

radiation. Rather, a sublethal dose must be aimed at to avoid a constitutional resection. As a rule, radiation is given in the form of high potential (200 KV) X-ray, using six portals around the circumference of the pelvis; in low lying tumors a perineal field is also irradiated. A full erythema dose is given through each portal. Some cases receive in addition to the above, transcutaneous irradiation with the four-gram radium pack, producing an erythema dose by daily sessions over a period of two weeks.

One to six weeks after the above, the patient is admitted to the hospital for colostomy. Seven to fourteen days later, interstitial radiation is given with radon implants in the tumor itself. It has been found that intracavitary and interstitial radium element radiations are much inferior. Implantation of the gold radon seeds is carried out by direct vision with the proctoscope, as only tumors easily reached are subjected to the method. Dose is such that no necrosis results. The object is to obtain devitalization and growth restraint of every cell of the tumor. For this reason calculation of dosage and proper seed distribution are most important factors in the success of the technic. Seeds are 4-5 mm. in length and 3-4 mm. in diameter with 0.3 mm. Au filter, and each contains 1-3 milcur. of emanation.

A total of 30-80 milcur. (3990-10640 milcurhrs. destroyed) are placed in the tumor, according to size, distributing the implants so as to secure uniform radiation of the entire neoplasm, especially along the peripheral fringe. Reaction is seldom severe when less than 50 milcur. are used.

One to four weeks later perineal resection of the Kraske type is done. The percentage of cases in which good results can be expected by this last procedure is materially increased by the radiation administered. With this plan a 56 per cent five-year chance of cure may be offered to a larger group of cases. For those in whom the last stage, resection, cannot be carried out, prolongation of life and greater comfort can be secured with the first steps. Frequent observation and repetition of the external radiation at intervals should be the therapeutic policy for the remainder of their lives.

Summary and Conclusion

In reviewing the therapeutic usefulness of radiation for cancer of the rectum, it is brought out that because 40 to 50 per cent of the cases are inoperable when first seen by the surgeon, and because all surgical procedures have a relatively high recurrence rate, a large group of the cases must necessarily come under the care of the radiotherapist. It can be concluded that despite the comparative radioresistance of rectal carcinoma, external radiation with high voltage roentgen rays or with the radium element pack, is of distinct value in the operable as well as in the inoperable cases. The combination of surgery and radiation by the method of Binkley can be expected to yield a higher percentage of clinical cures and greater palliation in the advanced stages of the disease. The maximum degree of usefulness of radiation remains to be developed.

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THE OSCAR ALLEN TUMOR CLINIC
CHARITY HOSPITAL
NEW ORLEANS

The scientific meeting of December was called by Dr. J. T. Nix, Director. The essayist was Dr. Blaise P. Salatich, who presented the following paper.

CANCERS OF THE ORAL CAVITY

Cancer within the mouth is sometimes a sad and somewhat discouraging proposition, and if not seen and treated in its early stages a permanent cure is very often almost hopeless, because of the glandular involvement which takes place in connection with these malignant tumors. The oral cavity is frequently an important site for the development of cancer and is of special interest to both the dental and medical profession, not only of the great variety of neoplasms of varying malignancy arising from these organs and tissues found in the mouth and vicinity, but also because of the close relation between chronic inflammation, sex, habits and cancer. A great majority of these malignant tumors are formed by the epitheliomas of the mucous membranes.

The figures of the United States registration area for cancer deaths show that the oral cavity stands fifth in order of frequency, being preceded by the stomach, liver, female genital organs, intestines and rectum. Since oral cavity cancer is credited with killing more people than skin cancer, its importance must not be at any time underestimated. It is five times more frequent in men than in women, although these proportions apply

to neoplasms of the lip, tongue, floor of the mouth and gums of the mandible in particular; in other parts of the oral cavity there is no disproportion between the sexes. In other parts of the world cancer of the oral cavity plays an even more important role as a lethal disease than it does in the United States. According to Bablet (1926) and Talung-Bonnaire (1925) among the Annamese of Cochin-China it stands first among the regions of the body affected by cancer.

To facilitate matters somewhat, an attempt will be made to describe the different structures that go to make up the oral cavity separately. Before this can be done, however, we must first discuss briefly the precancerous lesions found in these regions. The most important precancerous lesion is leukoplakia which is a hyperplasia of mucosal epithelium with a building up of superficial layers to form thick white patches or plaques, a lesion comparable to the hyperkeratosis of dry epithtelial surfaces. The most accurate and widely used description of these epithelial plaques is that of a piece of white wet blotting paper which has been placed against the mucous membrane giving it a slight elevated appearance from the surrounding tissue. These lesions which are so often found in the mouth especially on the buccal surface of the cheeks and lateral surface of the tongue, are in the majority of the cases caused by a definite traumatic condition present.

Bad carious teeth, chronic irritation from a persistent presence of pyorrhea alveolaris and very often ill fitting dentures and bridges are responsible for the proliferation of epithelial cells found in these precancerous lesions. Since it has been long acknowledged that chronic irritation and stimulation is very often, and considered by some, entirely responsible for the presence of malignant neoplasms, great stress should be applied to make the clinician realize the importance of oral asepsis and the removal as soon as possible of the irritating conditions present.

The greatest mistake made in the treatment of these oral malignancies is that the irritating factor is very often allowed to remain untreated, although an attempt is made to treat the condition present. On seeing neoplasms in the mouth and surrounding structures, the first move should be to clear up any sepsis or poor oral hygiene which may exist.

In the case of a carcinoma of the cheek or tongue, having a number of sharp, badly decayed teeth persistently in contact with the lesion, this antagonizing and irritating condition should be relieved, and if smoothing the rough edges of these teeth is not sufficient, they should be extracted.

Since we are dealing with such a merciless, unyielding, vicious situation as cancer, no attempt of conservation should be made if any permanent and successful prognosis can be expected. One should not hesitate in the treatment but must meet the situation with as much determination as the neoplasm is destructive.

Simmons found that eighty-five per cent of the epitheliomas of the oral cavity was caused by irritating factors in the mouth. He found bad, sharp teeth in 116 of 154 cases and in 28 cases the patients dated their first symptoms from the irritation of a false tooth or bridge.

Fox studied forty cases of leukoplakia buccalis, thirty-eight men and two women. All the men were smokers and in the majority of cases the teeth were in very poor condition. Sixty-five per cent of the cases had syphilis. Four of the forty cases had definite epithelioma and four others were suspected of having it. This again brings out the fact that the more common cases of extreme epithelial hyperplasia in the mouth are syphilitic lesions, heavy smoking, teeth in bad condition, or a combination of any or all of these.

When cancers develop first in the alveolar mucosa there may be a preceding infective granuloma, as in the case reported by Van Reckow (1929).

Considering that in almost every instance epithelioma of the gums is associated with bad teeth, one wonders why, if this is of etiological importance, it is not found just as frequently in women as it is in men, since women are by no means free from the irritation of bad teeth. Possibly the sex susceptitbility for this site has been fostered by selection and heredity.

When one is dealing with a swelling on the lip or inside the oral cavity, with or without ulceration, which is not acutely inflamed, biopsy is the only sure diagnostic method. This determines the malignancy of the peoplasm, relative degree of differentiation and probably radio-sensitivity. Intelligent therapy cannot be undertaken without it.

There are two errors commonly made. One is to treat an ulcer of the tongue or elsewhere as syphilis because the patient is shown to have syphilis when actually the lesion is an ulcerated epithelioma alone, or an epithelioma which has developed into a syphilitic leukoplakia. The other common error is to treat an epithelioma of the gum as the alveolar manifestation of an osteomyelitis of the jaw following some dental infection. Every lesion secondary to a tooth socket infection, which does not yield promptly to treatment, should have a piece of tissue removed for microscopic examination. It is generally agreed nowadays that there is far more danger to the patient by not confirming the diagnosis than there is of possible spread by cutting into it.

Many of the anterior intra-oral cancers are squamous cell epithelioma and in certain respects resemble the same type of tumor found in the skin. From its start at the margin of an ulcer or an area of epithelial hyperplasia, the growth pro-

ceeds downwards into the deeper layers of the mucosa.

From its very beginning the epithelioma indicates by its morphology the kind of cancer it is going to be. Invasion of the lymphatics is very often observed but seldom of the blood vessels.

The more malignant tumors tend to ulcerate early, seldom show much projection above the free surface, although the margins of the ulcer may be somewhat elevated, giving it the appearance of a crater. There is always a certain amout of inflammatory reaction in the form of round cell infiltration in the more slowly growing tumors. This has been interpreted by some as an effort at local resistance, because in the more rapidly growing tumors it does not seem as marked.

The treatment of these epitheliomas, if discovered late, will often be unsuccessful since they tend to infiltrate deeply, metastasize early, and the metastases may go directly to lymph nodes in the lower part of the neck. Removal or destruction of all the cancerous tissue is often very difficult and dangerous.

Local spread and invasive growth from metastases above the clavicle are chiefly responsible for the fatality of these malignant neoplasms. If all the cancer cells can be destroyed or removed in these areas, the case is very often cured, for it seldom spreads beyond them. This is accomplished often in the case of the lip, but intra-oral cancers present a more difficult situation.

Next in importance to the carcinomas in the oral cavity are the sarcomas, especially the osteo and chondro sarcomata which are found mostly in the maxilla involving the alveolar process, hard palate, antrum, and which may spread so much as to include the septum of the nose and the inferior border and floor of the orbit. In these cases, if the patient is seen sufficiently early, resection of the tumor and, if necessary, the maxilla en masse, together with the lymph glands on the affected side, will often yield a gratifying result. Deep therapy of the adjacent cervical lymph nodes should precede and follow surgical removal.

Although adamantinoma of the mandible is considered by some cancer men as not very malignant, if any, I cannot pass over it without describing briefly this condition. These tumors, also known as multilocular cysts, very often kill the host by invasion into the surrounding structures. If these tumors are not seen very early, a bad prognosis is generally the result. The roentgen ray is the most effective means of determining the extent of the lesion. Radical resection of the mandible when necessary will sometimes establish a cure. Additional sureties are the removal of the cervical glands or irradiation with heavy doses of deep roentgen ray therapy or both.

The cancers of the lower lip and upper portion of the oral cavity, which include the gums of the maxilla and the hard palate, are less likely to be fatal and are of lesser malignancy in their destruction than the cancers of the lower portion of the oral cavity because they are of the projecting, papillary type.

The presence of lymph node metastases decreases the ultimate chance of survival to a very great degree. It has been found that in old age tumors tend to be of the less malignant variety than those developing in the early stages of life.

In conclusion, regarding the prognosis of oral cavity malignancies, you must take in consideration not only the microscopic differentiation but also the situation in the mouth, the presence or absence of metastases, the speed of the growth, the relative age of the neoplasms, and whether they grow by infiltrative destructive ulceration or by making a projecting mask. Only by determination of these factors and the application of adequate irradiation and surgery can we hope to secure satisfactory results.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

JANUARY 2 Clinico-Pathological Conference Touro Infirmary, 10:30 to 11:30 A. M.

JANUARY 2 Physiology-Pharmacology Journal Club, Richardson Memorial, 4 to 6 P. M.

JANUARY 4 Pathological Conference, Hotel Dieu,, 11 A. M. to 12 Noon.

JANUARY 7 Eye, Ear, Nose and Throat Staff, 8 P .M.

JANUARY 7 Centennial Celebration, 8 P. M., Auditorium Tulane Medical School.

JANUARY 9 Clinico-Pathological Conference, Touro Infirmary, 10:30 to 11:30 A. M.

JANUARY 9 Physiology-Pharmacology Journal Club, Richardson Memorial, 4 to 6 P. M.

JANUARY 9 Touro Infirmary Staff, 8 P. M.

JANUARY 11 Pathological Conference, Hotel Dieu, 11 A. M. to 12 Noon.

JANUARY 11 French Hospital Staff, 8 P. M.

JANUARY 14 ORLEANS PARISH MEDICAL SOCIETY. Installation of Officers, 1935. 8 P. M.

JANUARY 15 Charity Hospital Medical Staff, 8 P. M., Baptist Hospital.

JANUARY 16 Clinico-Pathological Conference, Touro Infirmary, 10:30 to 11:30 A. M.

JANUARY 16 Physiology-Pharmacology Journal Club, Richardson Memorial, 4 to 6 P. M.

JANUARY 16 Charity Hospital Surgical Staff, 8 P. M.

JANUARY 17 Eye, Ear, Nose and Throat Club, 8 P. M.

JANUARY 17 Mercy Hospital Staff, 8 P. M.

JANUARY 17 New Orleans Hospital Council, 8 P. M.

JANUARY 18 Pathological Conference, Hotel Dieu, 11 A. M. to 12 Noon.

JANUARY 18 I. C. R .R. Hospital, 12 Noon.

JANUARY 21 Hotel Dieu Staff, 8 P. M.

JANUARY 22 Baptist Hospital Staff, 8 P. M.

JANUARY 23 Clinico-Pathological Conference, Touro Infirmary, 10:30 to 11:30 A. M.

JANUARY 23 Physiology-Pharmacology Journal Club, Richardson Memorial, 4 to 6 P. M.

JANUARY 25 Pathological Conference, Hotel Dieu, 11 A. M to 12 Noon.

JANUARY 28 ORLEANS PARISH MEDICAL SOCIETY, 8 P. M.

JANUARY 30 Clinico-Pathological Conference, Touro Infirmary, 10:30 to 11:30 A. M.

JANUARY 30 Physiology-Pharmacology Journal Club, Richardson Memorial, 4 to 6 P. M.

At a recent meeting of the General Body the following Delegates and Alternates to the Louisiana State Medical Society were elected for a term of two years:

DELEGATES	ALTERNATES
Dr. H. W. Kostmayer	Dr. P. Graffagnino
Dr. L. J. Menville	Dr. E. L. Leckert
Dr. Waldemar R. Metz	Dr. John Signorelli
Dr. John A. Lanford	Dr. H. B. Gessner
Dr. S. M. Blackshear	Dr. P. Jorda Kahle
Dr. Frederick L. Fenno	Dr. Shirley C. Lyons
Dr. Frank J. Chalaron	Dr. J. D. Rives
Dr. C. Grenes Cole	Dr. H. Theodore Simon
Dr. W. H. Seemann	Dr. John F. Oakley
Dr. Allan Eustis	Dr. Leopold Mitchell
Dr. Edwin H. Lawson	Dr. Lucien A. LeDoux

December 5 the Annual Stanford E. Chaille Memorial Oration was delivered by Dr. James M. Mason of Birmingham, his subject being, "Stanford Emerson Chaille as a Student Viewed Him." This meeting was very well attended.

On Saturday, December 8 the election of officers for 1935 was held in the office of the Society. The following candidates were elected:

President—Dr. Val H. Fuchs.
First Vice-President—Dr. Frederick L. Fenno.
Second Vice-President—Dr. James D. Rives.
Third Vice-President—Dr. Edwin H. Lawson.
Secretary—Dr. H. B. Alsobrook.
Treasurer—Dr. Shirley Lyons.
Librarian—Dr. Alton Ochsner.

Additional Members Board of Directors
Dr. Andrew V. Friedrichs.
Dr. Foster M. Johns
Dr. Waldemar R. Metz.

A Symposium on Cancer was held on Monday, December 10, 1934. Papers were read as follows:

The Consideration of the Microscopic Appearance in the Prognosis and Treatment of Carcinoma.
By:.....Dr. Edwin H. Lawson

Recognition and Prevention of Epithelioma.
By:.....Dr. M. T. Van Studdiford

Cancer—Its Palliative Surgical Treatment.
By:.....Dr. Ambrose H. Storck

There was no discussion from the floor.

This meeting was designated as the election meeting and the election returns were announced to the membership.

Dr. J. A. Gorman resigned as an Associate Member of the Society.

Dr. A. E. Fossier has been appointed Chairman of a special committee for the Centennial Celebration of Medical Education in Louisiana. Drs. C. C. Bass, Isidore Cohn, Allan Eustis and Randolph Lyons have been appointed to serve on this committee.

The Centennial Celebration will be held Monday, January 7, 1935. The following program is to be presented.

Dr. Rudolph Matas: Southern Influence of Medical Education.

Dr. C. C. Bass: Short Sketches on the Deans of of the School. (Photographic).

Mayor T. Semmes Walmsley will give a short address.

Dr. A. E. Fossier: Early History of the School.

The Installation of Officers of the Orleans Parish Medical Society for 1935 will be held Monday, January 14, 1935. Dr. L. L. Lumsden, Medical Director of the United States Public Health Service will be the Orator of the evening having as his subject, "Tuberculosis." Dr. Waldemar R. Metz will deliver his annual report as President for 1934. Dr. Val H. Fuchs will deliver his Inaugural Address.

Drs. Paul Cameron, James L. Gouaux, A. Scott Hamilton, Rudolph H. Kampmeier and Robert A. Robinson were elected to Active Membership effective January 1, 1935.

The members are urged to send in their dues for 1935 as soon as possible. Dues for Orleans Parish Medical Society are $12.00 annually or $3.00 quarterly. Dues for the Louisiana State Medical Society are $6.00 annually. Your Medical Defense begins only from the date your check is received, so you are requested to send in your check at once to cover.

TREASURER'S REPORT

ACTUAL BOOK BALANCE, 10-31-34	$ 652.76
November credits	356.84
TOTAL CREDITS	$ 1,009.60
November expenditures	369.50
ACTUAL BOOK BALANCE 11-30-34	$ 640.10

LIBRARIAN'S REPORT

The evening hours of opening in the Library are proving an appreciated feature of Library service. This is shown by the fact that there is seldom a night when several members of the Society do not avail themselves of the comfortable quarters afforded them for reading and study of the best and newest in medical literature. Any physician wishing to read on a special subject on a certain evening need only telephone the Library and the reference will be collected and the books put out for his use at the time specified.

Members of the staff have gathered material on the following subjects during the month, at the request of physicians:

Blood dyscrasias.
S. E. Chaille.
Glycine in muscular dystrophies.
Cysts of the jaw.
Poisoning with roach paste.
Early microscopy.
Pseudo-hypertrophic paralysis.
Cirrhosis of the liver in children.
J. Forestier.
Rubin test for patency of tubes.
Bacillus mucosis capsulatus in vaginitis.
Vaccine therapy.
Medical illustration and anatomical drawing.
J. M. Mason.
Morphology of fetus.
Fracture of vertebra.
Cell inclusion in measles and scarlet fever.
Cricumvallate placenta.
Pellagra in childhood.
Vulvovaginitis.
Child guidance.
Arterial hypertension.
Frei test.

Frederick L. Fenno, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

1935 OFFICERS OF PARISH SOCIETIES

The following Parish Medical Societies have elected officers for 1935:

Avoyelles Parish—President, Dr. S. J. Couvillon, Moreauville; Vice-President, Dr. T. J. Perkins, Simmesport; Secretary-Treasurer, Dr. R. L. Cope, Marksville; Delegate, Dr. W. F. Couvillion, Marksville; Alternate, Dr. R. G. Ducote, Bordelonville.

Caddo Parish—President, Dr. J. M. Gorton; First Vice-President, Dr. J. D. Young; Second Vice-President, Dr. J. P. Sanders; Historian, Dr. J. M. Bodenheimer; Treasurer, Dr. D. R. McIntyre; Secretary, Dr. Pau D. Abramson; Delegates, Drs. W. S. Kerlin, J. G. Yearwood, L. H. Pirkle, W. P. Butler, B. C. Garrett, and R. T. Lucas; Representative to Charity Medical Unit, Dr O. C. Rigby; all of Shreveport.

Concordia-Catahoula Bi-Parish—President, Dr. H. H. Ratcliffe, Ferriday; Vice-President, Dr. E. C. Ferguson, Clayton; Vice-President, Dr. C. J. Gordon, Sicily Island; Secretary-Treasurer, Dr. John Schreiber, Vidalia; Delegate, Dr. H. H. Ratcliffe, Ferriday.

Lafourche Parish—President, Dr. I. J. Boulet, Larose; Vice-President, Dr. Leo Kerne, Thibodaux; Secretary-Treasurer, Dr. P. J. Dansereau, Thibodaux.

Fourth District—President, Dr. T. B. Tooke, Belcher; Vice-President, Dr. W. J. Norfleet, Shreveport; Secretary-Treasurer, Dr. Paul D. Abramson, Shreveport; Delegate, Dr. C. M. Baker, Minden; Alternate, Dr. Dorf Bean, Shreveport.

ST. TAMMANY PARISH MEDICAL SOCIETY

The St. Tammany Parish Medical Society met Friday night, December 14, at Covington, with a fair representative number of the membership present. The officers elected to serve the Society for the ensuing year are as follows:

President, Dr. Carl Young, Covington; President-Elect, Dr. H. E. Gautreaux, Covington, re-elected; Secretary-Treasurer Dr. H .D. Bulloch, Covington, re-elected; Delegate Dr. John K. Griffith, Slidell; Alternate, Dr. F. R. Singleton, Slidell.

The next meeting will be held on January 11, 1935, at the Southern Hotel, Covington, when the officers elected will be duly installed.

H. D. Bulloch, M. D., Secretary.

EAST AND WEST FELICIANA BI-PARISH MEDICAL SOCIETY

The Bi-Parish Medical Society met in the Rist Hotel on December 5, 1934. After being served one of the best dinners of the year by Mrs. August Rist, the Society was called to order by the President.

Election of officers for 1935 resulted as follows: President, Dr. N. F. Stafford, Jackson; Vice-President, Dr. A. S. Tombs, Jackson; Secretary-Treasurer, Dr. E. M. Toler, Clinton; Delegate, Dr. C. S.

Toler, Clinton; Alternate, Dr. E. M. Robards, Jackson.

The scientific program was first a paper by Dr. Williams on "Osteo-Condroma;" second, a paper by Dr. U. S. Hargrove on "Modern Methods of Diagnosis and Treatment in Urology." Both papers were favorably discussed by members present. A vote of thanks was extended Drs. Williams and Hargrove for the preparation and presentation of their excellent papers. A vote of thanks was given Mr. and Mrs. August Rist for preparation and serving of the superb meal.

Members and guests present were: Drs. McCaa, Voss, Stafford, Robards, Robert, Shaw, Roberts, Lewis, Hargrove, Tombs, Sewell, Miller, Williams, Lea, Irwin, C. S. and E. M. Toler, Miss Tate, Mrs. Roby, Mrs. Miller, Mrs. Tombs, and Mrs. Roberts. Society adjourned to meet first Wednesday in February, 1935, at 7:30 P. M.

C. S. Toler, M. D., President,
E. M. Toler, M. D., Secretary.

RED RIVER PARISH MEDICAL SOCIETY

The Red River Parish Medical Society, at its meeting in December, elected the following officers: Presiuent, Dr. L. S. Huckaby, Harmon; Pesident-Elect, Dr. W. B. Hunter, Coushatta; Secretary-Treasurer, Dr. B. Hochfelder, Coushatta; Delegate, Dr. W. T. Wilkinson, Coushatta; Alternate, Dr. B.Hochfelder, Coushatta.

Dr. M. D. Hargrove, Councilor of the Fourth District, and Dr. J. M. Gorton, President-Elect of the Shreveport Medical Society, were guests of the Society.

NEWS ITEMS

Prof. J. Raymond Hume of the Graduate School ot Medicine, addressed the meeting of the Montgomery, Alabama Medical Society which was held November 26, on "Hyperstetic Nose."

Prof. Isidore Cohn attended the meeting of the Southern Surgical Association held at Sea Island, Ga., during the week beginning December 10, 1934.

Prof. H. W. Kostmayer, Dean of the Graduate School of Medicine of Tulane University, addressed the quarterly meeting of the Lafourche Valley Medical Society held at Raceland, La., the evening of December 11, 1934. The subject of his talk was "Systematic Efforts to Relieve Infection in the Cervix Uteri."

Dr. H. R. Mahorner addressed the meeting of the Southern Mississippi Medical Society at Hattiesburg, Miss., December 13, 1934, on "Fractures."

Prof. Randolph Lyons of the Graduate School attended a meeting of the Board of Regents of the American College of Physicians at Philadelphia, Pennsylvania, on December 15, 1934.

Dr. L. Roland Young of Covington, La., has been at the Graduate School of Medicine, University of Pennsylvania, since October 15, and will remain through December 15, doing the group work in clinico-pathologic neuro-psychiatry in the U. of Pa. Graduate School of Medicine. This is one of the courses especially planned or designed for the medical staffs of State Mental and Nervous Hospitals, particularly of course, Pennsylvania. He also took in the main features of the International Medical Assembly which was in session in Philadelphia several weeks ago.

Dr. Robert A. Strong was the guest speaker at a joint meeting of the Linn County Medical Society and the Iowa State Pediatric Society at Cedar Rapids, Iowa, on the evening of November 30 and was a guest speaker at a joint meeting of the Georgia State Pediatric Society and the Fulton County Pediatric Society at an afternoon and evening session on December 13.

At the organization meeting of the Southeastern Branch Society, of the American Urological Association, held in Atlanta on December 7 and 8, Dr. Edgar G. Ballenger, of Atlanta, was elected president; Dr. Henry W. E. Walther, of New Orleans, was elected president-elect, and Dr. Earl Floyd, of Atlanta, was elected secretary-treasurer. Nashville was selected as the meeting place for 1935.

INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information. For the week ending November 17, the following diseases were reported in double figures: Forty-one cases of malaria, 25 of diphtheria, 20 each of scarlet fever and cancer, 18 of pneumonia, 15 of pulmonary tuberculosis, 12 each of gonorrhea and syphilis, and 11 of typhoid fever. These latter cases were reported in parishes scattered throughout the State. One case of smallpox was reported from Red River Parish, and a case of poliomyelitis from both Caddo and Orleans Parish. For the week ending November 24, syphilis was back at its usual place at the head of the list of reportable diseases, there being 84 cases listed. There were 46 cases of gonorrhea, 30 of diphtheria, 28 of malaria, 21 of scarlet fever, 20 of tuberculosis, 19 of pneumonia, 13 of cancer, and 12 of typhoid fever. No parish had more than 2 cases of typhoid fever reported. Another case of smallpox was reported from Red River Parish, and one of poliomyelitis from Calcasieu. East Baton Rouge Parish listed a case of undulant fever. For the forty-eighth week of

the year ending December 1, pulmonary tuberculosis was reported in 39 instances. There were 29 cases each of malaria, cancer, syphilis, and pneumonia; 25 new cases of diphtheria were on the list, and 21 of scarlet fever, as well as 10 each of septicemia, typhoid fever, and pellagra. One case of rabies was reported from Orleans Parish (imported), and a case of poliomyelitis in Calcasieu Parish. Evidently the reporting of syphilis and gonorrhea is decidedly spasmodic, as in the week ending December 8, 100 case reports of syphilis came to the State Board of Health. Pneumonia and tuberculosis were reported in 49 instances and gonorrhea in 40. Other reportable diseases include 88 cases of diphtheria, 36 of malaria, 25 of chickenpox, 19 of cancer, 17 of scarlet fever, 16 of typhoid fever, and 14 of influenza. Two more cases of poliomyelitis were reported from Calcasieu, and one from Lincoln. This former parish is having some interesting experiences with the infectious diseases, as a case of typhoid fever was also listed from this parish and 2 cases of tularemia. For the fiftieth week of the year pneumonia led all other diseases, with a total of 49 cases reported. Other diseases reported in double figures include 33 cases of cancer, 30 of diphtheria, 29 of pulmonary tuberculosis, 26 of syphilis, 21 of scarlet fever, 20 each of chickenpox and malaria, 19 of measles, 15 of gonorrhea, 14 of influenza, and 10 of whooping cough. Three cases of undulant fever were reported this week from Orleans Parish, and 4 cases of typhoid fever from Caddo.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending November 17 there were 151 deaths in the City of New Orleans, divided 90 white and 61 colored, giving a death rate for the group as a whole of 16.4, for the white population 13.7, and for the colored 22.8. In this week the infant mortality rate of negro children was 163. In the succeeding week ending November 24, there was a slight increase in the number of deaths, these totaling 160, of which 92 were in the white race. The death rate for the whole group was 17.3, for the white 14.0, and for the colored 25.4. The infant mortality rate this week was 102. For the succeeding week which ended December 1, the total death rate was exactly the same as the preceding week, the only difference being that one less white person died and one more negro died than in the previous week. The total number of deaths undoubtedly would have been very much smaller had it not been for the tremendously high infant mortality rate of 184, two and one-half times the normal rate. In the next week which ended December 8 there was a slight increase in the total number of deaths, there being 167 with the rate of 18.1, 99 of whom were white with a death rate of 15.1, and 68 of whom were colored, with a rate of 25.4. The number of deaths in children under one year of age was still high, the infant mortality rate this week being 146.

LOUISIANA SOCIETY FOR THE PREVENTION OF BLINDNESS

Annual Meeting of the Louisiana Society for the Prevention of Blindness will be held January 8, 1935 at Tip Top Inn of the Roosevelt Hotel at 8 p. m. The medical profession and the public are invited to attend.

The war against blindness, carried on by organized forces throughout the United States for the past 26 years, gains momentum in Louisiana this month when Lewis H. Carris, Managing Director of the National Society for the Prevention of Blindness, comes to New Orleans to attend the annual meeting of the Louisiana Society for the Prevention of Blindness. The State organization which has its offices at 1810 Pere Marquette Building in New Orleans has been active in that city throughout the past year. It now plans an extension of its activities in the various Parishes of the State.

Mr. Carris, in a recent broadcast, made the statement that the greatest single victory in the war against blindenss from "babies sore eyes" could be prevented in practically every case through the use of drops of a prophylactic solution in the eyes at birth. Doctors and midwives are now required by law in most States, to use this procedure as a routine measure. The result, Mr. Carris pointed out, has been a marked reduction in the number of new cases of blindness arising from "babies sore eyes."

The enforcement of this preventive measure is one line of activity which the Louisiana Society has announced as its immediate concern. Another is co-operation with the Louisiana School authorities in the establishment of sight-saving classes for school children. Still a third is the protection of the eyes of men and women in industry. The main objective, according to Dr. Charles A. Bahn, president of the society, is briefly and inclusively, the education of the general public in the need of protection and conservation of sight—the first of the five senses allotted to men.

COOPER, BARBOUR D., Manhfield, La. Born in 1867. Graduated from Medical College Vanderbilt University, 1888. Dr. Cooper specialized in eye, ear, nose and throat. He was a member of the American Medical Association, Louisiana State Medical Society, and the DeSoto Parish Medical Society. He died on October 19, 1934.

WOMAN'S AUXILIARY
LOUISIANA STATE MEDICAL SOCIETY

Dear Auxiliary Members and Doctor's Wives Who Are Not Members:

May you all have a Happy and most Prosperous New Year.

With the coming of the New Year 1935 brings the realization that we only have a little over three months before our state meeting in April in New Orleans.

We all know what it means to go to New Orleans at any time, and to go knowing that the Orleans Parish Medical Society and Orleans Parish Auxiliary are to be our hosts and hostesses will indeed be a pleasure to look forward to.

To plan for a convention requires work, much time and thought and more work. Let us show our appreciation by beginning to make our plans right now to attend the meeting in April. Won't all of you doctor's wives who are not members join with us in our auxiliary between now and April? If you are interested will you let us know so we may get in touch with you.

This is the season of the year that makes us fully and deeply appreciate the meaning and spirit of good will and good fellowship, and that, as you all know, is the basic principle of our auxiliary—to promote good fellowship among physician's families.

With kindest regards
Sincerely,
Verna H. Watkins.

Mrs. T. H. Watkins, President Woman's Auxiliary, Louisiana State Medical Society.
Lake Charles, La.
December 14, 1934.

WOMAN'S AUXILIARY TO THE
OUACHITA PARISH MEDICAL SOCIETY
MONROE, LOUISIANA
1934

Officers—Mrs. J. E. Walsworth, President; Mrs. J. Q. Graves, 1st Vice-President; Mrs. W. L. Bendel, 2nd. Vice-President; Mrs. John G. Snellings, Recording Secretary; Mrs. C. L. Mengis, Corresponding Secretary; Mrs. Marvin Johnson, Publicity Secretary; Mrs. John Pracher, Treasurer; Mrs. C. H. Hill, Historian; Mrs. C. P. Gray, Parliamentarian.

STANDING COMMITTEES

Program—Mrs. C. P. Gray, Chairman; Mrs. P. L. Perot, Mrs. D. M Moore, Mrs E R. Yancey.

Courtesy and Entertainment—Mrs. F. C. Bennett, Chairman; Mrs. J. C. Sadler, Mrs. I. J. Wolff, Mrs. D. I. Hirsch, Mrs. J. Q. Graves.

Telephone and Membership—Mrs. A. D. Tisdale, Chairman; Mrs. C. U. Johnson, Mrs. A. B. Gregory, Mrs. J. G. Snellings

Educational and Hygeia—Mrs. R. W. O'Donnell, Chairman; Mrs. W. Y. Bendel, Mrs. J. B. Brown.

Visiting Committee—The President, Chairman; Mrs. J. B. Vaughn, Mrs. H. S. Coon, Mrs. D. T. Milam, Mrs. H. S. Guerriero.

Public Relations—Mrs. E. R. Yancey.

Program Committee on Year Book, 1935-36—Mrs. A. D. Tisdale, Chairman; Mrs. C. U. Johnson, Mrs. C. P. Gray, Mrs. P. L. Perot.

Mrs. J. O. Graves of Monroe is acting president of the Ouachita Auxiliary this year in the absence of the president, Mrs. J. E. Walsworth, who is in Nashville for the winter. Mrs. Graves has sent the following account of the autumn meetings of the Ouachita group:

Our first two meetings were altogether social affairs. The first was a benefit bridge Oct. 16 at Lake Charles Country Club the proceeds to go to our Indigent Doctors Fund. We realized $12.00 above expenses which I requested our treasurer to forward to this fund. The club was made quite lovely with a wealth of autumn flowers, yellow daisies predominating and with roses, chrysanthemums and dahlias. From the Seal Sale our committee reported $17.00 collected. We placed Hygeia in several schools, in the Auxiliary paying for same, but we decided not to solicit subscriptions from private homes, allowing an agent this privilege.

Our second meeting was a luncheon featuring a thanksgiving musical program. Several outstanding artists contributed to the occasion. A Thanksgiving solo by Mrs. Gladys Whitfield, a series of readings by Monroe's most famous entertainer, Mrs. Blanche Oliver, and a violin solo by Mrs. O. Frisbie.

CADDO PARISH

Miss Mary Loeb of Shreveport is the teacher this year at the Pines Preventorium, a home school maintained in Caddo Parish for potentially tuberculous children. Miss Loeb took her B. S. degree from Elmira College, Elmira, New York and did post graduate work at Sophie Newcomb in New Orleans. So much for her acedemic equipment, in black and white. But that does not tell of her sweetness and charm, nor of her amazing understanding of those problems that a social worker must face in such an institution. The children under her supervision gave a program for the Auxiliary in November, highly creditable to any school group. Besides all that, Miss Loeb has writthe the following article for our column:

A TUBERCULOSIS PREVENTORIUM SCHOOL

The school in which I teach has a history of seven years. It was started by a group of industrious women of the Medical Auxiliary of Shreveport, who were willing to give their mornings for the education of the children of the preventorium. The maximum time these ladies could give was realized not to be enough; therefore, six years ago a committee asked the School Board of Caddo

Parish to give a part time teacher to the preventorium. This request was granted upon the condition that there would be ten children of school age in the institution. Since then the number has always been at least ten and this year it is fifteen with seven grades represented. Although the Shreveport Medical Auxiliary no longer does the teaching, the organization continues to help the school by furnishing paper, pencils and drawing materials.

My experience of teaching seven grades at one time has made me believe that the old rural school teacher must have been a martyr. The instructor of children whose ages and mentalities vary greatly must use all her ingenuitiy and cleverness to keep them occupied.

In my school, I find myself changing my plans and methods from week to week, for I have the unique type of school which is not mentioned in the volumes written on pedagogy nor have I found any reference to it under social work. There, I think, is the keynote to a preventorium school teacher. She is not just a teacher but a social worker. During three and one half hours, five days a week, I attempt to teach to children of the lowest backgrounds not only the "three r's," but I find myself interrupting the stated part of the curriculum, to include manners, health, and encouragement for a homesick child. I also try to make the school just as much like the average city school as possible. In our few hours, we find time for the study of famous painters, dramatics, and the essentials of a cultured child's reading knowledge such as familiarity with Lewis Carroll. These studies keep school from being a drudgery and my pupils are learning very important facts at the same time.

Since I have worked in a preventorium I feel capable to say that this type of tuberculous work is well worth the combined efforts of medical auxiliaries, state and cities. The need is great. At present we are only pioneering, but let us look to the future when the fight against tuberculosis will be great enough to have all those who need attention enrolled in a preventorium. Then maybe one teacher for seven grades will no longer be necessary!

WEBSTER PARISH

Webster Parish has the following officers this year:

Mrs. Carroll Summer, president; Mrs. S. M. Richardson, vice-president; Mrs. J. B. Benton, secretary and treasurer. Advisory Committee from the Medical Society: Dr. W. McDade and Dr. J. B. Benton.

ORLEANS PARISH

For the news this month, know you will be very glad to learn the Auxiliary is very much interested in the Social Hygiene lectures being given in the schools and we are happy to say that we have given a Committee on Social Hygiene. To this committee we donated $25.00 towards defraying the expenses of bringing Dr. Valerie Parker to New Orleans to give these lectures to the school girls, and last month, very nearly 1500 girls in the high schools had the pleasure of hearing these lectures. We are delighted with these results and feel that we are helping sponsor a mighty big and fine piece of work.

This month, we have inaugurated a new idea. Mrs. Jamison has asked the membership to write comments and criticisms about our monthly entertainment programs, and to give ideas and suggestions as to what they would like to have in the way of entertainment at our teas. She feels that as originally planned this year, with a musical program and a lecture every other month, our attendance will be larger and we will, in that way, stimulate new interest. For this purpose, cards are placed on the registration desk and each lady is asked to take a card upon registering and write her comments sometime during the meeting and on the way out, leave them at the desk. In that way, each member is made to feel that she is a part of the Auxiliary and that her interest is our interest also.

Our meeting this afternoon was very gay and festive with the spirit of Christmas in the air. Our centerpiece for the tea table was especially lovely—a plateau of red rosebuds with red (dyed) Baby's-breath and the green fern. (As an afterthought, did I tell you that our florist sends each month, the flower in season and the color-scheme always in keeping with the occasion? Thought you might be interested in knowing this).

We have dispensed all of the medicine samples we have collected to various hospitals in the city and are still collecting clothes for students in need of them.

Our entertainment for today was a book review—Lloyd Douglas' "Precious Jeopardy" which was very delightfully given by Mrs. Clarence Henson.

Mrs. George D. Feldner,
Chairman Press and Publicity Committee.

Mrs. R. R. Arceneaux, president of Jefferson Davis Auxiliary sent a message telling of illness among the members which prevented a meeting last month.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

HAPPY NEW YEAR

CALENDAR

SOCIETY MEETINGS

ALCORN COUNTY MEDICAL SOCIETY: Third Thursday of each month. Club Room of Ladren Hotel, Clarksdale, 7 P. M.

ADAMS COUNTY MEDICAL SOCIETY: Third Tuesday of each month, Natchez Hospital, 7 P. M.

CENTRAL MEDICAL SOCIETY: First Tuesday of each month, Robert E. Lee Hotel, Jackson, 7 P .M.

CHICKASAW COUNTY MEDICAL SOCIETY: Last Thursday of each month, Houston Hospital, Houston.

CLAIBORNE COUNTY MEDICAL SOCIETY

CLARKSDALE AND SIX COUNTIES MEDICAL SOCIETY: Third Wednesday in March and fourth Wednesday in November, Clarksdale, 2 P. M.

CLARKE-WAYNE MEDICAL SOCIETY: No regular meetings except for election of officers. Called meetings for special session.

COAHOMA COUNTY MEDICAL SOCIETY: Second Wednesday of each month, Clarksdale Hospital.

DELTA MEDICAL SOCIETY: Second Wednesday of April and November, 2 P. M. Next meeting, Greenwood, April 10, 1935.

DESOTA COUNTY MEDICAL SOCIETY: First Monday of January, April, July and October, Hernando, 10 A. M.

EAST MISSISSIPPI MEDICAL SOCIETY: Third Thursday in February, April, June, August, October and December, Meridian, 3 P. M.

HARRISON COUNTY MEDICAL SOCIETY: First Wednesday of each month, King's Daughters' Hospital, Gulfport or Biloxi Hospital, Biloxi, 7:30 P. M.

HOMOCHITTI MEDICAL SOCIETY: Second Thursday of January, March, July and October, Natchez, 2 P. M.

ISSAQUENA - SHARKEY - WARREN COUNTIES MEDICAL SOCIETY: Second Tuesday of each month, Elks Club, Vicksburg, 7 P. M.

JACKSON COUNTY MEDICAL SOCIETY: Second Thursday of March, June, September and December, Jackson County Hospital, Pascagoula, 7:30 P. M.

MONROE COUNTY MEDICAL SOCIETY: First Monday of each month, alternates between Aberdeen and Amory.

NORTH MISSISSIPPI MEDICAL SOCIETY: First Wednesday of October, January, April and July.

NORTHEAST MISSISSIPPI THIRTEEN COUNTIES MEDICAL SOCIETY: Third Tuesday of March, June, September and December, 1 P. M.

PIKE COUNTY MEDICAL SOCIETY: First Thursday of each month. McComb, 7 P. M.

PONTOTOC COUNTY MEDICAL SOCIETY: First Tuesday of each month, 2 P. M.

SOUTH MISSISSIPPI MEDICAL SOCIETY: Second Thursday in September, December, March and June, alternates between Hattiesburg and Laurel, 3 P. M.

TATE COUNTY MEDICAL SOCIETY: Third Wednesday of each month, Senatobia, 8 P. M.

TRI-COUNTY MEDICAL SOCIETY: Second Tuesday in March, June, September and December, Wesson, Tylertown, Monticello or Brookhaven, 12:30 P. M.

WEBSTER COUNTY MEDICAL SOCIETY: Last Thursday of each month Houston Hospital, Houston.

WINONA DISTRICT MEDICAL SOCIETY:

MISSISSIPPI STATE HOSPITAL ASSOCIATION: Biloxi, May 13, 1935.

MISSISSIPPI STATE MEDICAL ASSOCIATION: Biloxi, May 14, 15, 16, 1935.

POSTGRADUATE MEDICAL EDUCATION

The first circuit of the postgraduate course in obstetrics under the direction of the Committee on Postgraduate Medical Education will begin the week of January 7, 1935. Mr. Q. Edward Gatlin, organizer, reports that the enrollment of a large number of physicians has been secured and many have expressed themselves as being fortunate in getting the instructional course so near their homes. The program is taking well and is going over in an excellent way.

SCHEDULE OF CLASSES

Adams, Franklin and Jefferson Counties, Mondays, beginning January 7 at 6 p. m. in the Natchez Charity Hospital.

Amite and Wilkinson Counties, Tuesdays, beginning January 8 at 1:30 p. m. in the Field Memorial Hospital, Centreville.

Pike and Walthall Counties, Wednesdays, beginning January 9 at 1 p. m. in the City Auditorium, McComb.

Marion County, Thursdays, beginning January 10 at 7 p. m. in the Marion County Courthouse, Columbia.

Jefferson Davis and Lawrence Counties, Fridays, beginning January 11 at 2 p. m. in the Masonic Hall, Silver Creek.

Hours of meeting subject to change with consent of the physicians attending.

OUTLINE

Each meeting will be approximately two hours in length, the first hour for lectures by the Field Clinician, Dr. Maxwell E. Lapham, and the second

for clinical demonstrations and round-table discussions. The subjects for the meeting are:

1. Early Diagnosis of Pregnancy: Signs and Symptoms.

First Prenatal Examination: General Physical Examination, Pelvic Examination, Pelvimetry.

2. Instructions to Pregnant Women: Progress of Pregnancy. Some Minor Complications Arising During Pregnancy.

3. Hemorrhage in Pregnancy and Puerperium: Minor Causes, Abortion, Malignancy, Hydatid Mole, Premature Separation, Placenta Previa, Postpartum Hemorrhage.

4. Toxemias of Pregnancy: Early Toxemia—Treatment. Late Gestational Toxemia-Prevention and Treatment.

5. Management of Labor: Analgesia and Anasthesia in Labor. Methods of Delivery. Immediate Postpartum Care.

6. Care of Newborn Baby: Immediate and Routine.

7. Postpartum Complications: Prevention and Treatment.

8. Puerperal Sepsis: Preventive Measures. Treatment.

9. Final Examination of Mother and Baby: Routine Gynecological Examination. Gynecological Office Treatment. Equipment etc.

10. Suggested Lectures.

CLINICAL DEMONSTRATIONS

The course will depend for much of its effictiveness upon the availability of clinical material. Members of the group are invited to cooperate in suggesting patients. The Field Clinician is willing to devote out-of-class hours in consultations and in examining patients at the office of a physician if requested. This consultation service is limited to educational purposes and it is done without cost. No patients will be seen without the recommendation of a physician and the Field Clinician will communicate with patients only through the physician.

FIELD CLINICIAN

Dr. Lapham was selected for this position after an intensive search for the best trained instructor available. He was highly recommended by the officials of the University of Pennsylvania Medical School and Hospital, especially by Dr. Edmund B. Piper, head of the Department of Obstetrics, Dr. Floyd E. Keen, Professor of Gynecology and Dr. Charles C. Norris, Director of the Department of Obstetrics and Gynecology. Since his graduation from the University of Pennsylvania Medical School in 1925, Dr. Lapham has served with distinction as interne for two years in rotating service at the Presbyterian Hospital of Philadelphia, five months as assistant surgeon in the Grenfell Foundation in Labrador, one year as chief resident at the University of Pennsylvania Hospital, two years as resident in obstetrics, consultant to the Out-Patient Maternity Service of the Medical School and assistant obstetrician to the Philadelphia Lying-in-Hospital, and three years as resident in obstetrics, assistant obstetrician, instructor in obstetrics and active assistant to Dr. Piper. During the past two years, 1933-34, Dr. Lapham has served as instructor of obstetrical education in Virginia, and offcials and members of the Virginia Medical Society and faculties of the University of Virginia Medical School and Medical Schools of Virginia state that the results were extremely gratifying.

GENERAL POLICIES OF THE COMMITTEE

The Committee on Postgraduate Medical Education is composed of two members from each of the following interested organizations: The Mississippi State Medical Association, Tulane University Schools of Medicine, Mississippi State Board of Health, and one representative from the Mississippi State Hospital Association. This body has been charged by the Mississippi State Medical Association to conduct an instructional program for the physicians at home in subjects such as obstetrics, pediatrics, general medicine, and the like, the first year's work being devoted to obstetrics.

The expenses are cared for by an appropriation from the Mississippi State Medical Association, Tulane University School of Medicine, The Commonwealth Fund, and the Mississippi State Board of Health. However, the contributing agencies and the Committee felt it advisable to establish at the beginning of the courses the principle of partial self-support by the physicians themselves, and for that reason it set a minimum enrollment fee of three dollars for the course.

The method of instruction adopted by the State Medical Association and the Committee is the organization of classes of physicians in convenient centers to meet for two hours one day a week for ten successive weeks. The first centers of the circuit are Natchez, Centreville, McComb, Columbia, and Silver Creek.

Except in special instances, a minimum enrollment of twelve physicians in a class is required. This requirement is waived in case of the first five centers, inasmuch as practically every physician who attends obstetric patients joined the class.

FURTHER COURSES

Courses will be organized in circuits to place this educational opportunity within the reach of every Mississippi physician as rapidly as the territory can be served. The second circuit is tentatively arranged for the area surrounding Corthage, Philadelphia, Newton, Bay Springs, and Shubuta.

The comments and suggestions of the physicians and all members of the Mississippi State Medical Association upon this program are cordially invited.

FELLOWSHIPS

The Commonwealth Fund of New York has just announced the award of fellowships for postgraduate study at Tulane University to the following Mississippi physicians:

Dr. W. O. Briggs, Osyka
Dr. R. B. Caldwell, Baldwyn
Dr. C. E. Catchings, Woodville
Dr. W. W. Irby, Quitman
Dr. A. D. Majure, Dixon
Dr. J. D. Simmons, Gunnison
Dr. H. G. Waldrop, Dumas
Dr. R. B. Zeller, Hazlehurst
Dr. H. F. Byers, Senatobia
Dr. T. G. Conn, Monticello
Dr. E. J. Guinn, McCondy
Dr. C. M. Gully, DeKalb
Dr. N. W. Nanney, Fulton
Dr. A. K. Naugle, West Point
Dr. Ira B. Seale, Holly Springs
Dr. U. S. Wasson, Moorhead

These fellowships are provided by the Commonwealth Fund as a part of its program of cooperation with the Mississippi State Board of Health and Tulane University. This is the fifth year fellowships have been awarded to Mississippi physicians.

Felix J. Underwood.

HONORED

An unusual incident took place here recently. J. H. Johnson & Company, one of the largest and best insurance agencies in the South, last week celebrated its fortieth anniversary.

Hundreds of guests gathered here from all over the southern states to do honor to this company. The climax of the celebration was reached when a huge banquet was tendered the guests at the Alcazar Hotel.

During the progress of the banquet, Mr. Johnson introduced the members of his family individually to the large assembly. Along with his family he introduced his family physician, who had looked after him and his during these forty years.

When Dr. J. W. Gray stood before that immense crowd I was reminded of the eternal fitness of things, and I was also reminded of the relative value of things and of Mr. Johnson's appreciation of them. In recalling those that had shared with him in making his success possible he overlooked his lawyer and his banker and remembered only his family physician.

Many a doctor has helped some family towards success but not all of them have been openly acknowledged as was Dr. Gray. Long life to J. H. Johnson & Company and to their family physician!

T. M. Dye.

LONGEST IN ACTIVE PRACTICE

You have appealed to the various county medical society reporters for news and especially for the oldest practitioners of our science and art and these have vied with each other to claim the honor. Now it seems each has had his say and some one is chuckling all to himself thinking that he has the honor "in the bag." I have purposely refrained from making my report knowing that the palm would ultimately come to Lincoln County, "The Homeseekers' Paradise," and repose becomingly on the brow of the dean of medicine in Brookhaven, Dr. John Thomas Butler. Born at Granger, Lawrence County, June 10, 1854. After finishing his preparatory course, he entered the University of Missouri Medical Department graduating from that institution May, 1877. After practicing for one year he took postgraduate training and a diploma from Bellevue Hospital College. He enjoyed a most lucrative practice in Missouri, till his return to his native state, locating in Brookhaven, June 1, 1894.

Every one with any acquaintance with this part of the state either knows or has intimate knowledge of Dr. J. T. Butler. He has always held the profession high and had the respect and esteem of the profession locally and in the State Association to which he has been delegate from his local organization many times. He is a past president of the old Lincoln County Society and of the Tri-County Medical Society.

He is now and has been physician to Whitworth Female College since 1900. He is still erect and most active, clear thinking and attends his society meetings anywhere in the district.

In September 1933 the Tri-County Society made him a life honorary member and presented his name to the House of Delegates of the Mississippi State Medical Association for the same honor and received it most modestly from that organization.

He has been continuously an officer in his church in Brookhaven for the past forty years.

Thus Lincoln County and the Tri-County is not without honor and pride in claiming this coveted distinction. Long life, worthy attainments, integrity, respect, love and confidence and other attributes accuring, may he long continue to set an example of a worthy professional and Christian life—and in due season receive the reward of the just.

W. H. Frizell,
Councilor Eighth District.

MISSISSIPPI STATE BOARD OF HEALTH

On Thursday, November 22, Dr. Underwood attended in Washington a meeting of the Public Health Advisory Committee of the President's Committee on Economic Security. Dr. Underwood is serving on the committee as a consultant in

public health. Although not a member of the group formulating plans for medical care, while in Washington he learned of some of the plans of the Economic Security Committee for providing medical care for the American people in the lower income brackets. Nothing definite is available yet, but the members of the Committee on Medical Care are trying hard to work out an arrangement whereby the physicians will receive adequate compensation and the people not able to buy good medical, dental and hospital care will be provided for. There are four advisory committees to the Committee on Economic Security—Medical, Dental, Hospital, and Public Health.

Last Appeal! The State Board of Health now has a complete file of the Transactions of the Mississippi State Medical Association from 1856 to date with the exception of the three volumes for 1894, 1898, and 1899. If you have one or more, we shall be glad to purchase them or receive them as donations to the collection in our library.

On November 25, the King's Daughters' Tuberculosis Hospital of Meridian held a dedication program. Lauderdale County is one of the two counties in Mississippi which the Commonwealth Fund of New York has assisted in having "super" health units. As a part of the tuberculosis control program, the Fund made an appropriation to be used in enlarging, repairing, and equipping fully the present buildings and for the construction of additional needed buildings. All work has now been completed and the institution is now operating at full capacity. Dr. D. L. Walker of Meridian is the medical director.

Dr. C. C. Applewhite, representative of the U. S. Public Health Service, was in Jackson several days early in December. Dr. Applewhite has been assigned to act as liaison officer between the F. E. R. A. and the medical profession for six states. This should be very helpful to the medical profession and at the same time be of assistance to the Welfare Administration.

Felix J. Underwood,
Executive Officer.

AN OPENING

Our community doctor, Dr. E. D. Barron, died several months ago. We have an opening for a good physician in our section, and we would appreciate it if you could put us in touch with a good doctor who is not located.

J. Mack Jones,
Superintendent,
Claiborne County Graded Schools.

DR. W. S. SIMS

Dr. W. S. Sims, Jackson, died November 24, 1934, of pneumonia. He was a native of Meridian, coming to Jackson 35 years ago. He had studied at Vienna, specializing in ophthalmology. He is survived by one son, W. S. Sims, deputy circuit clerk of Hinds County; one daughter, Mrs. Sue Sims Swan; four grandchildren, one brother, Smith Sims of Russell; and two sisters, Corie Sims of Collinsville, Ala., and Mrs. John Moore of Chicago.

Honorary pallbearers were the members of the staffs of the Jackson Infirmary and Baptist Hospital.

D. W. Jones.

CENTRAL MEDICAL SOCIETY

Dr. W. B. Dobson, Jackson, was elected to serve as the president of the Central Medical Society at the annual meeting of the organization held in Jackson. Dr. Dobson will succeed Dr. E. L. Green of Carpenter, retiring president.

At a banquet held in the convention hall of the Robert E. Lee Hotel, approximately 55 members gathered to hear the address of the visiting speaker, Dr. Vinsonhaler, Dean of the Medical School, University of Arkansas. Dr. Vinsonhaler chose as his topic the life and work of Dr. William C. Gorgas, Surgeon-General, U.S.A.

Following the address, the Society continued the election of officers. The vice-Presidents, chosen from the counties comprising the society, are as follows: Dr. J. K. Bullock, Jackson, Hinds County; Dr. J. P. Burnham, Canton, Madison; Dr. J. B. Ainsworth, Florence, Rankin; Dr. O. O. Austin, Harpersville, Scott; Dr. E. L. Walker, Magee, Simpson and Dr. Gilruth Darrington, Yazoo City, Yazoo. The rest of the officers are: Dr. L. W. Long, Jackson, re-elected secretary; Dr. N. F. Kendall, Jackson, treasurer; Dr. D. W. Jones, Jackson, censor. Delegates chosen from the various counties are: Dr. G. E. Adkins and Dr. T. E. Wilson, Jackson, Hinds, Alternates, Dr. F. L. Van Alstine and Dr. Guy Verner, Jackson, Dr. John Howell, Canton, Madison; Alternate Dr. J. P. Burnham; Dr. H. N. Holyfield, Brandon, Rankin, Alternate, Dr. J. B. Ainsworth, Florence; Dr. R. B. Austin, Forest, Scott; Alternate, Dr. I. P. Burdine, Jr., Sanatorium; Dr. O. H. Swayze, Yazoo City, Yazoo, Alternate, Dr. J. T. Rainer, Yazoo City.

L. W. Long.

COAHOMA COUNTY MEDICAL SOCIETY

At a meeting of the Coahoma County Medical Society held on December 12, the following resolutions were unanimously adopted:

Our attention has been called to recent bulletins issued by A. D. Simpson, Jr., Chief Clerk, and C. B. Braun, Administrator, Emergency Relief, in which fifteen dollars is set as a maxmium fee in obstetrics and one dollar for the administration of neo.

The members of our Society have adhered strict-

ly to the contract signed by the State Board of Public Welfare and the Mississippi State Medical Association in November 1933. This contract provides that "A uniform fee of 50 per cent of the usual prevailing fees obtaining in each community, provided that in no instance shall the minimum fee be less than—fifteen dollars for obstetric attention."

The giving of neo has never in private practice been classed as a simple office prescription, and should never be. A printed schedule of fee obtaining in Clarksdale, and which was filed with the State Board of Welfare at the time the above contract was signed, giving the fee for neo as five dollars.

As far as we have been able to learn there have been no changes made in the contract with the Board of Public Welfare. The only comments made was a telegram sent by the Director of the State Board of Public Welfare to the Secretary of the State Medical Association in March, 1934 in which he said in part "Instructions being given Welfare Workers to allow half usual fee where giving of intravenous medication. Medicine to be furnished by Relief Organization."

The members of the Coahoma County Medical Society intend to live up to the contract made by the State Association and we will give no neo for one dollar nor take any obstetrics cases for fifteen dollars. We prefer to administer our own charity and in our own way.

Further, the Secretary is instructed to send a copy of this resolution to the Emergency Relief Administration at Jackson and a copy to the New Orleans Medical and Surgical Journal, and to the officers of the State Medical Association.

(Signed) E. LeRoy Wilkins, President
T. M. Dye, Secretary.

DELTA MEDICAL SOCIETY

At the October meeting of the Delta Medical Society held in Greenville the following officers were elected:

President.—Dr. Paul G. Gamble, Greenville.

Vice-Presidents.—Bolivar County, Dr. Walter Merritt, Boyle; Humphreys County, Dr. J. W. Jackson, Belzoni; Leflore County, Dr. L. M. Otkin, Greenwood; Washington County, Dr. R. G. Finlay, Glen Allen; Sunflower County, Dr. W. H. Weeks, Doddsville.

Delegates to the State Medical Association.—Dr. E. R. McLean, Cleveland, Bolivar County, one year; Dr. J. C. Higdon, Belzoni, Humphreys County, two years; Dr. G. Y. Gillespie, Greenwood, Leflore County, two years; Dr. U. S. Wasson, Sunflower County, three years; Dr. J. G. Archer, Greenville, Washington County, three years.

Dr. F. M. Acree, Greenville, was re-elected Secretary and Treasurer.

John G. Archer.

ISSAQUENA-SHARKEY-WARREN COUNTIES SOCIETY

The annual meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held at Hotel Vicksburg, December 11 and after a banquet served at 7 p. m., the following papers were presented:

The Problem of the Crosseyed Patient.—Dr. W. R. Buffington, New Orleans.

The Diagnosis and Treatment of Intestinal Ileus.—Dr. Ambrose H. Storck, New Orleans.

Rheumatic Fever and the Rheumatic State.—Dr. P. H. Jones, New Orleans.

Distinguished guests besides the essayists included Dr. J. T. Cappell, Alexandria and J. B. Vaughan, Monroe, Louisiana, Councilors, the Louisiana State Medical Society; Dr. T. M. Dye, Clarksday, Secretary Mississippi State Medical Association; Dr. F. J. Underwood, Jackson, Past President and member of Committee on Public Policy and Legislation, Mississippi State Medical Association; Dr. W. H. Watson, Pelahatchie, Councilor Fifth District, Mississippi State Medical Association; Dr. J. P. Wall, Jackson, Speaker, Mississippi State Medical Association; Dr. W. H. Anderson, Booneville, Member of Committee on Public Policy and Legislation, Mississippi State Medical Association; Dr. John B. Howell, Canton, Chairman, Budget and Finance Committee Mississippi State Medical Association; Dr. J. M. Acker, Jr., Jackson, Past President, Mississippi State Medical Association; Dr. V. B. Philpot, Houston, President, Mississippi State Hospital Association; Dr. J. Gould Gardner, Columbia, Past President Mississippi State Hospital Association; Dr. H. H. Haralson, Vicksburg and Dr. S. W. Johnston, Vicksburg, Past Presidents, Mississippi State Hospital Association.

The following officers were elected for the year 1935:

President—Dr. F. Michael Smith, Vicksburg.

Vice-Presidents—Issaquena County, Dr. J. B. Benton, Valley Park; Sharkey County, Dr. H. S. Goodman, Cary; Warren County, Dr. H. H. Johnston, Vicksburg.

Secretary-Treasurer—Dr. Leon S. Lippincott, Vicksburg.

Board of Censors—Dr. H. S. Goodman, Cary; Dr. P. S. Herring, Vicksburg; Dr. W. H. Scudder, Mayersville.

Delegates to the Mississippi State Medical Association—Issaquena County—Dr. W. H. Scudder, Mayersville; Sharkey County, Dr. W. C. Pool, Cary; Warren County, Dr. J. A. K. Birchett, Jr., Vicksburg.

Committee on Medico—Legal Defense—Dr. W.

H. Watson, Pelahatchie. (Councilor); Dr. S. W. Johnston, Vicksburg; Dr. Leon S. Lippincott, Vicksburg.

Committee on Program and Scientific Work—The President, Vice-Presidents, and Secretary.

Committee on Public Health and Legislation will be appointed by the President and announced at the next meeting.

The next meeting of the Society will be held Tuesday, January 8, 1935, at the Elks Club, Vicksburg.

Leon S. Lippincott,
Secretary.

NEWTON COUNTY MEDICAL SOCIETY

The doctors of Newton County met at Decatur, on November 22 and organized a county medical society with the following members present: Box and Stennis of Newton, Gilmore and Majure of Hickory, Pennington and Henton of Decatur, Parkes of Conehatta, Turnage of Lake and Polk of Union. Dr. W. E. Box was elected president and Dr. Stennis, secretary. Drs. Polk, Turnage and Pennington were appointed as a committee to confer with the county welfare worker in regard to a circular letter sent out by her to all the doctors in the county.

Application to the State Medical Association was made for a charter.

Dudley Stennis.

NORTHEAST MISSISSIPPI THIRTEEN COUNTIES MEDICAL SOCIETY

The fourth quarterly meeting of the Northeast Mississippi Thirteen Counties Medical Society was held at Tupelo Methodist Church, Tuesday, December 18, beginning at 1 P. M.

The program as announced by Dr. J. M. Hood, president and Dr. J. M. Acker, Jr., secretary, was as follows:

Meeting Called to Order.—President, J. M. Hood.
Invocation.
Reading and Adoption of Minutes of Last Meeting.
"The Recognition of the More Common Mental Disorders."—Dr. D. D. Baugh, Houston.
General Discussion.
"The Treatment of Peptic Ulcer by Venoclysis."—Dr. G. A. Hendon, Louisville, Ky.
Discussion opened by Drs. W. H. Sutherland and L. C. Feemster, Jr.
"Our Mutual Interest."—Dr. F. J. Underwood, Jackson.
General Discussion.
"Eclampsia."—Dr. A. G. Leroy, Booneville.
General Discussion.
Business Session.
Election of Officers.
Selection of next meeting place.
Adjournment.

PONTOTOC COUNTY MEDICAL SOCIETY

The Pontotoc County Medical Society met in it's regular monthly meeting Tuesday, December 4. We had a good attendance of doctors and a splendid paper by Dr. Douglass D. Baugh of Houston, subject "Leukemia." Dr. Baugh's paper was freely discussed by the attending physicians.

After the program we went into the election of officers for another year with the following results:

Dr. E. B. Burns, Ecru, president; Dr. O. F. Carr, Pontotoc, Vice-president; Dr. R. W. Carruth, Tupelo, R. No. 3, secretary and treasurer; R. W. Carruth, vice-president of Pontotoc County to the Northeast Mississippi Thirteen Counties Medical Society and J. A. Rayburn, Pontotoc, delegate to the State Medical Association. Our regular meeting of Pontotoc County Medical Society is first Tuesday of each month at 2:00 p. m. We extend you a cordial invitation to meet with us any time you can.

R. P. Donaldson.

TRI-COUNTY MEDICAL SOCIETY

The Tri-County Medical Society met at Whitworth College, Brookhaven, December 11.

Dr. Walton Shannon, Jackson, presented an interesting paper illustrated by lantern slides on "Disorders Originating From Impacted Teeth."

Proposed post-graduate work for the physicians of Mississippi, sponsored by the Mississippi State Medical Association, the Tulane Undergraduate and Graduate Schools of Medicine, the Mississippi State Board of Health, and the Commonwealth Fund of New York, was outlined by Mr. Q. E. Gatlin.

The election of officers for the coming year resulted as follows:

President—Dr. H. R. Fairfax, Brookhaven.

Vice-Presidents: From Copiah County, Dr. J. H. Beavers, Wesson; From Lincoln County, Dr. J. R. Marquette, Brookhaven; From Walthall County, Dr. A. B. Harvey, Tylertown; From Lawrence County, Dr. B. S. Waller, Silver Creek.

Secretary-Treasurer,—Dr. R. B. Zeller, Hazlehurst.

Board of Censors—Drs. W. L. Little, Wesson, and J. W. Wilson, Monticello.

Member of Committee on Medico-Legal Defense—Dr. F. E. Collins, Brookhaven.

Delegates to the Mississippi State Medical Association: From Copiah County, Dr. C. L. Simmons, Hazlehurst; From Lincoln County, O. N. Arring-

ton, Brookhaven; From Walthall County, Dr. B. L. Crawford, Tylertown; From Lawrence County, Dr. T. F. Conn, Monticello.

The retiring president, Dr. C. L. Simmons, gave the annual address, the subject being "Dietetics in the Treatment of Typhoid Fever."

The doctors and their wives enjoyed the unusually nice turkey dinner and the excellent program of music and readings by the college girls.

H. R. Fairfax.

WINONA DISTRICT MEDICAL SCCIETY

A meeting of the Winona District Medical Society was held at Winona, Tuesday, December 18. The program as announced was as follows:

1. Luncheon at Wisteria Hotel, 12:30 P. M.
2. The Doctor's Silent Partner.—Dr. Avent.
3. Some Observations on Malaria, with Special Reference to Differential Diagnosis from Acute Abdominal Conditions.—Dr. Elmore.
4. Arterial Diseases of Extremities.—Dr. Brumby.
5. Thyrotoxicosis.—Dr. Stephenson.
6. Election of Officers.

R. C. Elmore.

ADAMS COUNTY

The Adams County Medical Society held their regular meeting at Natchez Charity Hospital, Tuesday, November 20, with the usual program of business and discussions.

Our doctors usually stay home on Christmas, and those who have children help them to enjoy Santa Claus, and eat turkey, if they are lucky enough to to have any.

Lucien S. Gaudet.

COAHOMA COUNTY

Clarksdale, Miss.,
December sixth, 1934.

D. Lip. Lippincott,
Vicksburg, Miss.

Dere DR Editur:

yors maild dec. 3 ann wrote on a pust cyard was dulie delivred an iI wil ansuer at wunce ass Ii dunt fuly unnerstan oll ther iss tu itt.

YOU sed on it letts start the yererite.Y mann we up here ur tryin our durndest tue git thu the enn up thiss yere ess write ess we kin ann tryin tu figger whutv wee wil no nex. Ucee ther fera has cute 606 too $1 ann aint sennin meny at thet so usee the futuer issent so brite.

NeX yu ast hoo are the new offsurs in our socity. NOw iI mae be abul ter fin that out fer yu ann I Will le yuo noinn a fue days er soo.

BuT yore nex qustin ass towhut our docters en ther famlis dunn att cHrusmus tim. nOW im Durnned if I no. ITs neerlie CHRismus agin an hard too rememer thet furr bak. Ino yue ment lass yers xXmas causs yer sed ter git it inn bfur decemer tinth. fUrthermor i dunt go roun snoopin inter whut the yuther drs air doin jisslong tha stay fum my bec we rha wuds ann dunt fole roun enny uf my pateints. s0O yu see yuo wil hav too fin thet out fur urssef.

VUty trulie
JEss A Member (not an editor)

P.S. IJess seen dr nite) his nitils stan fur "nun cumpus" but hee reely iss a brite yung feller (ann he wus lectd sEc.en he sed thes wur ther 1s lected.

Pres. J.L. Nichols, Alligator; Sec. Treas. N. C. Knight, Clarksdale; V.PS. Bolivar Co., H. L. Cockerham, Gunnison; Coahoma Co., I.P. Carr, Clarksdale; Quitman Co., E.A. McVey. Lambert; Tallahatchie Co., T. F. Clay, Tutwiler; Tunica Co., D.F. Davis, Tunica; Censor (3 years) T.G. Hughes Clarksdale, Re-Elected: Medico-Legal Defense, J. W. Gray, Clarksdale, Re-elected.

Dr. nite sed tue be sur ann tell yuo thet we had a durn gude banket and thet ol war hoss dR Hill fum cOrnth got a idee thet he wus fore ther legislater a trying too get thu sum gil fur the gud uf the doctors ter got ther pay er sumpin ann He reely mad a shu nuf guod speeach. ALL was glad he cum.

NOw thet ansers bout all er yoranseurs ol topp So all rewar ann a hapy xXmus ann a merie nEW YEare.

rememer im jess a member.

p.s.P.S.) agin(ISTArted too read this but i roun one ar 2 mustakes ann I aint no time to rerite ital over. Enny wa yuo air the eDiter and otter hev a deckinary to see iff oll wurds speled crecklie. ANN Two this Dang tipriterr is wuss then a ole modet t too hannel. so yu needen laff at it.

yore jam

DESOTO COUNTY

Dr. A. L. Emerson was absent from his office; the old negress who does the laundry was asked where was the doctor,—"white folks don't yu no that the docyur is lying at the pint of illness." "What is the trouble auntie?" "He has got a tech of the henfluenzy and if he is notc areless he will be down with neumonia of the lungs." To the delight of his many friends, the good doctor is all right again and has resumed his work.

To all who read these notes we wish a most Happy New Year. As Tiny Tim observed—"God bless us all."

L. L. Minor.

FRANKLIN COUNTY

Dr. A. C. Lofton, Lucien, has been on the sick list from the effects of a severe cold.

Mrs. Mullins, Bude, went back to New Orleans recently in the interest of her health. Here's hop-

ing that the specialist there found her greatly improved.

The doctors of this county met at the home of Dr. C. E. Mullins in Bude on November 27. After enjoying greatly a luncheon served by Mrs. Mullins we organized by electing Dr. Mullins chairman and Dr. Castley of Meadville, secretary. Dr. Townes was chosen to take up the matter of securing a charter through our councilor for this district.

The correspondent is grieved over the death of his aged and beloved mother, who died on November 29. Had she lived until December 19 she would have been 96 years of age. Truly the greatest sorrow that can come to the human heart, is the loss of one's mother.

S. R. Townes.

HOLMES COUNTY

Mrs. Alice Chason Gilliam, who has been technician at the Holmes County Community Hospital for some time, resigned December 1, and is now associated with the Holmes County Health Unit. Her work with the unit will be in the eastern part of the county.

Dr. C. H. Ingram, Pickens, spent ten days in December in Florida visiting his daughter.

Dr. J. J. Kazar and Mrs. Kazar, Tchula, attended the meeting of the Southern Medical Association in San Antonio, after which they extended their trip to Mexico.

Dr. A. L. Gray of the State Board of Health was in Holmes County in the early part of December, assisting the county health officer in the investigation of two cases of typhoid fever which occurred in the western part of the county in November.

R. C. Elmore.

ISSAQUENA COUNTY

At a recent meeting of the Issaquena-Sharkey-Warren Counties Medical Society the main number on the program was a general symposium on tuberculosis. From four to six doctors were assigned to each of the eight to ten divisions of the subject.

The chairman of program opened with a masterful introduction of the subject, referring to its ancient history, and touching on its progress during the successive ages of the world. Then came the other divisions in turn, symptoms, diagnosis, differential diagnosis, etiology, pathology, prognosis, predisposing causes, complications, prevention and finally treatment. The program was artistically arranged.

The handling of each subject was ample and complete, showing that those doctors assigned to each division had thoroughly studied their special parts beforehand.

But when the subject of treatment was reached, the chief and most important of all in the management of this ancient disease, not one word was said about the use of medicines. I remarked on this, and expressed my disapproval of abandoning the use of drugs in treating tuberculosis. But nobody said anything. Drugs are not popular nowadays in the treatment of tuberculosis. The pendulum has swung the other way.

The doctor who can corral his patient in a hospital may be able to hold him without giving him medicine, but it is different in the private home. The common people have a traditional faith in medicine. "There is balm in Gilhead for the healing of all the ills of the nation." This was handed down to them by the prophets. They still believe it, and demand that balm. So in the home the wise doctor will give medicines along with the rest if he wishes to hold his patient.

W. H. Scudder.

LEFLORE COUNTY

On November 6, Dr. W. D. Hickerson, director of the Field Unit on Tuberculosis, of the Commonwealth Fund, established a clinic at the local health unit for the roentgen ray examination of the chests of the border line cases of tuberculosis in this county.

Dr. and Mrs. S. L. Brister, Jr., and daughter, Margaret, went to Tuscaloosa, Ala., November 9 to spend a few days with Mrs. Brister's parents.

Dr. I. B. Bright spent a few days hunting in Louisiana, November 10 to 15.

Dr. and Mrs. J. C. Adams and Dr. and Mrs. L. B. Otken attended the "Ole Miss"-L. S. U. football game in Jackson, November 11.

Mrs. Mat. W. Steele, daughter of Dr. and Mrs. E. W. Hunter of this city died November 11 at the Biltmore Hospital, Asheville, N. C. Pulmonary abscess, resulting from Vincent's infection was the cause of death.

Dr. H. W. Turnipseed of Tchula was a visitor to Greenwood on November 14.

Dr. and Mrs. E. L. Scott of Birmingham, Ala., were guests in the home of the latter's sister, Mrs. E. T. Heard of Itta Bena, enroute from the recent meeting of the Southern Medical Association at San Antonio, Texas

Drs. Tate, Carl of Memphis and C. N. Pate of Hot Springs spent Thanksgiving in Greenwood with relatives.

Dr. and Mrs. P. E. Holladay of Meridian, visited in the home of the latter's sister, Mrs. Walter Jordan, on Thanksgiving.

Dr. and Mrs. J. E. Dunlap, Schlater, spent Thanksgiving in Belzoni.

Dr. and Mrs. D. T. Sayle, Highlandale, announce the marriage of their daughter, Evelyn, to Mr. W. M. Turner, Black Hawk, on November 28.

We are glad to report that Dr. G. Y. Gillespie,

Jr's father, Dr. Gillespie of Duck Hill, is very much improved after an operation in Memphis.

Dr. and Mrs. J. C. Adams attended the funeral of Mrs. Adams' uncle, Mr. C. H. Hammond of Memphis, November 29.

Dr. R. B. Yates is visiting relatives in Tallulah, La., for a few days.

W. E. Dickins.

MONROE COUNTY

The time for another report has come—the last report for 1934. For some reason I feel like answering "present but not voting." It is not that I have lost interest in the Journal—in the great work that our editor-in-chief is trying to do for the Association. Nor am I less interested in my many friends who constitute the membership of the Association, but I fear that my prattle may have become tireome to them.

News of a concrete and medical nature is scarce and hard to muster. And some of our readers have said that generalities and reports of commonplace happenings are trite and out of place and taste in a medical publication. What can a correspondent do? Having been assigned the task and having accepted the assignment duty demands that these monthly reports be made. I have always held that one should never shirk a duty.

First I am happy to say that no sickness has come into the home of any of the Monroe County doctors since my last communication. I mean no serious sickness. Dr. C. E. Boyd's wife was indisposed a few days while she battled with a slight attack of influenza—but she is well again. Dr. B. C. Tubb's wife and son have been visiting in Florida—I do not know whether they have returned home or not.

The Monroe County Medical Society held its monthly meeting in Amory Monday night, the 3rd instant. It was a most harmonious meeting. No regular program was followed except the election of officers for 1935. Dr. E. D. Boozer of Splunge was elected president, Dr. G. T. Tubb of Aberdeen was elected vice-president and Dr. Ward was re-elected as secretary. We are delighted with the experiences we have had during this first year since organizing the county society, and of course we expect to continue our monthly meetings. These meetings will in no way conflict with nor detract from the interest in the quarterly meetings of our district society—the North-East Mississippi Thirteen Counties Society.

When I wrote last I did not know the place of our next meeting of this great society and it is too late now to advertise the meeting place since the meeting will be on the 18th instant—before the publication time for the next issue of the Journal. But I hope many of my readers will be there so that I may greet them in person and wish them a merry Christmas and happy New Year. We are expecting some really "big" men to visit us then. So I will try to tell you, who do not come, somethins of them and the meeting in my next letter.

I had a nice letter from Dr. W. A. Evans a few days ago. He is still sojourning in Mexico, but he told me that he expected to spend several days back "at home" about the 15th of this month. He plans to visit a brother at Panama during the Christmas holidays. I am looking forward to some pleasant association with him when he gets here for his short pre-holiday visit.

I hope many (most) of you are planning to attend the Mid-South Post-Graduate Assembly at its February meeting in Memphis. Let me say to you who have never attended this meeting, that I think it is far more advantageous to attend this assembly than it is to attend the A. M. A. The best men in the entire nation appear on these programs and the meeting is just what its name implies—a post-graduate assembly lasting four days with no time given to politics or rag-chewing. Take my word for it and be sure to come and come confidently expecting to get four days of the best teaching that can be had in the nation.

When you read this, I hope that you may have jusa had a joyous holiday and that you may have expectations for a prosperous and happy new year.

G. S. Bryan.

WARREN COUNTY

"Alas! the slippery nature of tender youth," was the exclamatory sigh that old Dr. F. M. Smith gave out when he and his good wife arrived back from attending the meeting at San Antonio, of the S. M. A. and Southern Branch of the A. P. H. A., where it was the *self-imposed* duty of the doctor to look after and bring back the "baby members" of the profession of Vicksburg, who were also attending the Association, viz: Baby Jones, Robert, Purks and Jarratt. The doctor opines that on that last evening with the spacious dance hall flooded with a pale moonlight; with the cowboy's rendition of weird songs of the "lone prairie;" with dulcet syncopating waltzes played by the orchestra, and filling the spacious auditorium; with the red bandanas waving from arm, neck and waist of beautiful and graceful women; with kegs of foaming, inviting and invigorating beer surrounding the entire dance stadium, that had it not been that these baby (young) doctors from Vicksburg were chaperoned by their mortal guardian angel, that he would have been until now corralling these young bloods. But thanks to the beneficient caretakers they are all safe back home.

What are these rumors we hear of the future hopes and ambitions of Drs. Tommie Sparks and William Purks, our bachelor boys? It is good news, worthy of acception, and yet not too good to be true. If we were gifted with the art of horoscopy,

or the prophetic vision of Walter Winchell, we might forecast a message that would harmonize with Mendelssohn's "Classic March."

Someone has said, "I pity the man that can travel from Dan to Beersheba and cry, "tis all barren.'" However, we shall not be surprised that when Dr. and Mrs. W. H. Parsons return from a visit they are now making to Cuba, that "Dr. Jack" will not exclaim, "It was all wet" from New Orleans to Havana.

Dr. Preston S. Herring has returned from St. Louis where he was taking a graduate course in internal medicine at Washington University.

P. S. I will just have to write a postscript to one of the news items carried above by stating yesterday's papers chronicled the quiet marriage of Dr. Tom Sparks to Miss Gladys Clements, of this city. Their many friends will wish that,

"No jealousy their dawn of love o'ercast,
Nor blasted be their wedded days with strife;
Each season look delightful as its past
By this fond husband and faithful wife."

On December 10, 11, and 12, Dr. Hickerson from the State Sanatorium will hold in our city a physician's consulting tuberculosis diagnostic clinic. Quite a few of our doctors have registered a number of their patients for physical and roentgen ray examinations, those who would not be financially able to obtain this service otherwise. Preference is given to children who have been contacts to active and open cases.

Great preparations are being made for the Issaquena-Sharkey-Warren Counties annual Medical Society meeting, Tuesday, December 11. Essayists on the scientific program are Drs. Buffington, Storck and Jones, of New Orleans. We are expecting many guests and anticipate a great time.

As we write these lines for our December news letter it is Thanksgiving Day, and in the seclusion and silence of our office we are given to memories and dreams. When you shall have read these lines, Thanksgiving, Christmas, and perhaps the New Year day will be in the past, as the many others that have gone before.

"The holiest of all holidays, are those
Kept by ourselves in silence and apart;
The secret anniversaries of the heart,
When the full-river of feeling overflows."

We trust a due portion of the joys and happiness of life have attended you, not alone on these holidays, but throughout the year, and may the New Year be a wondrous and joyful one.

H. T. Ims.

WASHINGTON COUNTY

The following Greenville doctors attended the Southern Medical meeting in San Antonio—Drs. O. H. Beck, J. C. Pegues, J. A. Beals, E. T. White, R. E. Wilson and P. G. Gamble.

Dr. and Mrs. P. G. Gamble, Greenville, motored to Mexico City after attending the Southern Medical meeting in San Antonio.

Dr. and Mrs. T. B. Lewis of Greenville motored to Lumberton, where they were guests of Dr. Lewis' brother for a short visit.

Mr. and Mrs. James Franklin and daughter Sharon of Jackson, accompanied by their sister Mrs. Rhea Blake and Berkley of Blue Field, Va., came over from Jackson to be with Dr. and Mrs. Lewis who recently celebrated their 25th wedding anniversary.

Dr. and Mrs. C. P. Thompson and Miss Dorothy Thompson of Greenville very graciously honored Miss Kathleen Keady, lovely bride-elect whose marriage to Mr. Hugh Bernard McCormick of Helena, Ark., will be celebrated Christmas day, when they entertain with a kitchen shower at their home.

Dr. and Mrs. C. P. Thompson of Greenville recently entertained their Nite Bridge Club at their beautiful suburban home.

Mrs. Fritz Schas of Memphis was a visitor this past month in the home of Dr. and Mrs.D.C. Montgomery, of Montbury, Greenville.

Dr. D. C. Montgomery and two handsome sons, Cameron and John Atterbury, attended the L. S. U. and Tulane football game in Baton Rouge.

The many friends of Dr. and Mrs. L. C. Davis of Greenville are delighted to hear that their little daughter Ada Lee has improved enough to be taken home from the King's Daughters' Hospital where she underwent a major operation. Her early recovery is hoped for by all.

Dr . and Mrs. J. A. Wadlington of Belzoni are happy over the complete recovery of Mrs. Wadlington who was so desperately ill at the King's Daughters' Hospital, Greenville.

Mr. Dean Wasson, of Jackson, son of Dr. and Mrs. U. S. Wasson of Moorhead was able t leave the King's Daughters' Hospital in Greenville recently after a serious illness.

Dr. and Mrs. J. A. Beals of Greenville have enjoyed a visit recently of their father and mother, Mr. and Mrs. J. F. Beals of Westfield, Ind

Mr. and Mrs. W. S. Beck and Mr. and Mrs. William Beck of North Chattanooga, Tenn., spent the Thanksgiving holidays with Dr. and Mrs. O. H. Beck of Greenville.

Mrs. J. A. Johnson of Merigold spent a few days with her son and daughter, Dr. and Mrs. E. T. White of Greenville.

Dr. F. M. Acree of Greenville spent several days in Memphis this past month on business.

The many friends of Dr. and Mrs. J. B. Hirsch of Greenville regret to learn of the illness of their son Joseph.

Dr. and Mrs. G. W. Eubanks of Greenville motored to Jackson recently on business.

Miss Dorothy Thompson who is a student at "Ole Miss," spent the Thanksgiving holidays with

her parents, Dr. and Mrs. C. P. Thompson, Greenville.

The oldest doctor in Washington County—Dr. S. M. Shankle.

Dr. Shankle is 74 years old. He graduated at the University of Louisville Medical Department in 1883. He practiced medicine in Panola County for five years and in 1888 located in Hollandale where he was in active practice for 44 years. Dr. Shankle retired from active practice in 1932. For the last 22 years he has been mayor of Hollandale which office he continues to fill at the present time.

John G. Archer.

WINSTON COUNTY

Troop 25, Louisville Boy Scouts, was transferred recently to the American Legion to train and sponsor. The writer has served as chairman of this troop this year, and we note with interest that this troop won the highest points in a contest for proficiency, standing with 410, Louisville 24 ranking second with 380. We give our scout master, Rev. J. M. George, credit for this great work. The troops in the contest consist of the entire East Mississippi Council.

Dr. Howard Kellis, Shuqualak, has recently moved into our city. He is physician and surgeon for the Sumpter Mills and will make our city his home. We welcome him with us and hope he may do well in his profession here.

Dr. T. C. Suttle, of Beth Eden neighborhood, has been ill, but was able to be on our streets yesterday.

The collections of our doctors are possibly better than last year, but they all seem agnostic about the future.

M. L. Montgomery.

THE WOMAN'S AUXILIARY TO THE MISSISSIPPI STATE MEDICAL ASSOCIATION

President—Mrs. Henry Boswell, Sanatorium.

President-elect—Mrs. Leon S. Lippincott, Vicksburg.

Secretary—Mrs. Adna G. Wilde, Jackson.

Treasurer—Mrs. C. C. Hightower, Hattiesburg.

Press and Publicity Chairman—Mrs. Hugh H. Johnston, Vicksburg.

THE WOMAN'S AUXILIARY TO THE CENTRAL MEDICAL SOCIETY

A number of our doctors' wives attended the Southern Medical Convention in San Antonio, Texas. Among those who attended were: Mrs. John Milne, Mrs. George Riley, Mrs. A. G. Wilde, Mrs. Lera McCarty, Mrs. John Darrington and Mrs. Gilruth Darrington of Yazoo City, Mrs. James Thompson, Mrs. Willis Walley, Mrs. Harvey Garrison, Sr., Mrs. H. L. McCalip of Yazoo City, and Mrs. H. C. Ricks.

Mrs. W. F. Hand and children spent Thanksgiving in Picayune with Mrs. Hand's parents, Mr. and Mrs. E. L. Robbins.

Some of the college-students expected home for the Christmas holidays are: Lucy Rembert, Sweet Briar; Mary Sunshine Hooper, Randolph-Macon; Mary Lane Womack, Collins College; Henrietta Rehfeldt, Stevens College; Heloise Segura, Ole Miss.; Elizabeth Mcenzie, M. S. C. W.; Jack Walke,r University of Alabama; Weston Segura, Ole Miss.; Harley Shands, Tulane; Ben Johnson, Ole Miss.

Mrs. W. F. Hand,
Press and Publicity Chairman.

THE WOMAN'S AUXILIARY TO THE ISSAQUENA-SHARKEY-WARREN COUNTIES MEDICAL SOCIETY

This year the Auxiliary is sponsoring the Tuberculosis Association seal sale and in order to stimulate interest in the sale, we have just completed an essay contest on "The Prevention of Tuberculosis." The essays were limited to five hundred words, and pupils from the county and city schools competed. The English teacher from each school selected four and these were then turned over to the Auxiliary and given to judges who selected the best essay from the county schools and one from the city schools. Prizes of $5.00 were given the winners. Miss Almetus McKinley of the Jett Vocational School and Miss Helen Lum of Carr Central High School were awarded the prizes. Miss Pauline Dirago, Saint Francis Xavier, and Miss Nannie May Marcà, Jett School won honorable mention.

The State Auxiliary is to offer a prize of $5.00 for the best essay sent in by the state, and of course we expect to send our winning essays in competition.

We also assisted the Tuberculosis Association in its Tuberculosis clinic which was made possible by the Mississippi Tuberculosis Association. They sent us a very efficient doctor to head the clinic and to make the roentgenograms of the patients, with the local Tuberculosis Association paying for the films and any other expense involved. Dr. W. D. Hickerson was the doctor to whom we are indebted for the great success of the clinic.

We are late getting off the Christmas seals this year, but up to date we have been very successful and are living in hopes of surpassing any previous seal sale we have yet had.

We are indebted to Miss Zita O'Leary as chairman of the seal sale, Mrs. George Street as radio publicity chairman, Mrs. Leon S. Lippincott as newspaper publicity chairman, Miss Annie Laura Ford and Mrs. Agnes Brackett for acting as stenographers so efficiently handling the mailing part

of the sale, and Miss Beverly Dougherty as secretary who had charge of depositing the money.

The December meeting of the woman's Auxiliary to the Issaquena-Sharkey-Warren Counties Medical Society was one of the outstanding events of the year. The luncheon took place in the Coral Room of the Hotel Vicksburg with Mrs. D. A. Pettit leader and Mrs. Leon Lippincott as hostess.

Mrs. Lippincott had prepared a beautifully apponted table using the silver and white color motif.

Mrs. Pettit introduced our councilor, Dr. Leon Lippincott, who in turn introduced the guests: Dr. W. H. Scudder, president of the Medical Society, Dr. Henry Boswell of Sanatorium, Dr. W. D. Hickerson, Dr. H. H. Haralson, and Mrs. Henry Boswell of Sanatorium, our state president.

Mr. and Mrs. Paul Boench entertained with a beautiful violin duet accompanied by Mrs. Baab at the piano.

After inspirational talks the men were excused and a short business session was held.

Mrs. S. W. Johnston, chairman of the nominating committee, presented the slate. The following officers were elected:—President, Mrs. L. J. Clark; President-Elect, Mrs. C. J. Edwards; First Vice-President, Mrs. D. A. Pettit; Second Vice-President, Mrs. L. E. Martin, Anguilla; Third Vice-President, Mrs. Preston Herring; Secretary, Mrs. M. H. Bell; Treasurer, Mrs. Pierre Robert; Historian, Mrs. Fannie Howard.

The Auxiliary is taking a great part in the sale of T. B. stamps. Mrs. D. A. Pettit, president of the Auxiliary and President of Carr Central Parent Teachers Association, had as the feature of the P.T.A. meeting at the school a health playlet by the pupils, "The Little Red" which was directed by Miss Virginia Sneed, a member of the school faculty. This play was based on the story of the development of the seal movement. The story of how Edward Livingston Trudeau, a victim of the disease, restored himself to health in "The Little Red"—a cottage in the Adirondacks.

Artistic posters of bygone years, each of which had a story woven around it, were brought out in the play. These artistic posters were painted by Mrs. Ada O'Kelly.

Also on the program was a delightful paper on "Christmas Seals Around the World" by Mrs. F. M. Smith, of our Auxiliary.

Another interesting feature was an inspirational and informative talk on "The Work of the Local Anti-Tuberculosis Association" by the first vice-president, Mrs. H. H. Haralson.

Mrs. Sydney Johnston with very appropriate remarks presented to the High School library a book, "The Life of Edward Livingston Trudeau"—a gift from the Auxiliary.

VICKSBURG SOCIAL NOTES

Mrs. F. M. Smith entertained at a beautiful tea at her home on Drummond St., in honor of the wives of the visiting doctors. Roses were used throughout the house to form a beautiful setting for such a lovely occasion.

Those who received with the hostess were: Mrs. Leon Lippincott, president-elect of the State Auxiliary; Mrs. Hugh Johnston, state press and publicity chairman; Mrs. John Howell, our councilor; and Mrs. D. A. Pettit, president of the Issaquena-Sharkey-Warren Counties Auxiliary.

The guests were invited into the dining-room where delicious refreshments were served. Mrs. Sydney Johnston and Mrs. H. V. Cooper graciously presided at the tea table.

Dr. and Mrs. R. A. Street, Jr., entertained at a beautiful dinner followed by interesting games of contract bridge at the Hotel Vicksburg.

Announcements have been received of the marriage of Dr. Thomas Sparks and Miss Gladys Clemens. We are pleased that our Auxiliary will have a new member.

Dr. and Mrs. W. H. Parsons are enjoying a vacation trip to Cuba.

Mrs. Gus Street was hostess at a delightful bridge luncheon in honor of Mrs. R. A. Street, Jr.

Dr. and Mrs. Edley Jones and Edley, Jr., have returned from a week-end visit to New Orleans.

Dr. and Mrs. Hugh Johnston entertained with a series of parties.

Friends of Mrs. H. S. Goodman regret that she is still ill at the Sanatarium.

Mrs. Embry, of Buena Vista, Va., is visiting her daughter, Mrs. George Street.

The many friends of Mrs. Laurance Clark regret to know that she is still confined to her bed after a long illness.

Mrs. Guy Caldwell, of Shreveport, La., was the guest of Mrs. George Street during her recent visit.

Mrs. J. M. Acker, Jr., of Jackson, Mrs. V. B. Philpot, of Houston, and Mrs. J. G. Gardner of Columbia, were guests of Mrs. Leon Lippincott.

Mrs. L. J. Clark,
Press and Publicity Chairman.

BOOK REVIEWS

Medicine Marches On: By Edward Podolsky, M. D. New York, Harper & Brothers, 1934. pp. 343. Price, $3.50.

This book purports to chronicle the great accomplishments of modern medicine and vividly to portray to the public the fact that the achievement of present-day physicians have been truly colossal. In the present conventional popular style, it related quite a few of the great advances in the alleviation and cure of dread diseases and the rescue from death, from deadly drugs and noxious gases.

There can be no quarrel with the author in regard to many of the subjects that he discusses, —the radio knife; the respirator; the use of sun and oxygen and dextrose; the tests for pregnancy are all enduring and evolutionary advances in medical treatment and diagnostic tests. There are, however, several subjects that have not been sufficiently studied to justify some of the optimistic and extravagant assertions of the author. For example, he cites the great achievement in the use of activated sulphur in the apparent cure of thromboangitis obliterans; the harmlessness of dinitrophenol in obesity; the use of mistletoe and watermelon seed in hypertension and the remarkable influence of vegetable mucin in the form of okra in the treatment of gastric ulcer. Although the author admits that the advances have been so numerous as to prohibit them all being discussed within the space allotted, he yet discusses several as yet unimportant accomplishments and has nothing to say about such important achievements as toxoid in diphtheria, scarlet fever antitoxin, anaydoin in amebic dysentery, the great efficacy of typhoid vaccination, the artificial pneumothorax in pneumonia. It would seem to the reviewer that there has been a tendency on the part of the author to discuss several matters because they make curious and entertaining reading to the exclusion of truly and important medical discoveries. I believe that the sustained effort to use catch phrases and to indulge in romantic expressions have at times led to loose statements of fact as when he says that doctors have found artificial pneumothorax to be extremely valuable in extensive and speedily progressing cases of tuberculosis and that all that one can do in early cases is offer sun, pure air and food.

I have discussed this book at great length because I believe it can create upon an uncritical and medically uneducated public, erroneous impressions and so lead to unwarranted optimism or pessisism on the part of many people. Much of the book make very interesting reading. There are many delightful passages and much informative data. To the physician or the informed layman knowing the difficulties and shortcomings in much of new scientific knowledge the book will prove a pleasant pastime.

I. L. Robbins, M. D.

Facts and Figures about Tuberculosis: By Jessamine S. Whitney. N. Y., National Tuberculosis Association, 1931, pp. 63.

The Social Adjustment of the Tuberculous: By Beulah W. Burhoe. N. Y., National Tuberculosis Association, 1934, pp. 32.

Death Rates by Occupation: By Jessamine S. Whitney. New York, National Tuberculosis Association, 1930, pp. 55.

These three pamphlets, issued by the National Tuberculosis Association, are well worth perusal and study by any one interested in the subject of tuberculosis. The first one gives a very complete statistical survey of tuberculosis and in all the various phases of this disorder. The second pamphlet likewise is an important contribution, dealing with death rates by occupation and their relation to tuberculosis. It is statistical entirely. The third pamphlet is also purely informative. It discusses methods that have been employed in rehabilitating the tuberculous individual.

J. H. Musser, M. D.

Manual of the Diseases of the Eye: By Chas. H. May, M. D. 14th edition, revised. Baltimore, Wm. Wood & Co., 1934. pp. 496.

The author of this little classic enjoys the unique distinction of having taught more physicians and medical students on the subject of Ophthalmology, than any one in the world's history. No other text book on this subject has met with sufficient favor to necessitate fourteen editions in one language, and fifty-three editions in eight languages.

Some new material has been added in the present edition, and quite a few revisions have been made. The illustrations have also been modernized, and increased in number. Numerous revisions have increased the clearness and conciseness of the style, which have added greatly to its popularity. Most of the recent advances are adequately discussed.

The chapter on Refraction does not seem up to the standard of the other chapters, and the Orthoptic treatment of the Phorias apparently justifies more detail.

I think that seborrhea is not given sufficient prominence in the etiology of chronic conjunctivitis, and that the author's classification of corneal diseases is loose.

In the next edition, I suggest that the table of contents be enlarged to facilitate the study of in-

dividual cases. As the standard classified nomenclature offers the foundation on which future medical text books will probably be written, its use, in a modified way, should be considered by the author.

CHAS. A. BAHN, M. D.

Nursing Schools Today and Tomorrow: Final Report of the Committee on the Grading of Nursing Schools, New York, Author, 1934. pp. 268. Price, $2.00.

This book comprises an eight-year study, at an expenditure of $283,500, of a well-balanced Committee on the Grading of Nursing Schools, which set as its function "the study of the ways and means for insuring an ample supply of nursing service, of whatever type and quality needed for adequate care of the patient, at a price within his reach." The report of this committee is comprehensive, and should be of future benefit in raising the standards of nurses' training schools.

J. O'BRIEN, R. N.

An Activity Analysis of Nursing: By Ethel Jones, R. N. and Blanche Pfefferkorn, A. M., R. N., New York City, Committee on the Grading of Nursing Schools, 1934. pp. 214. Price, $2.00.

This analytical study of nursing procedures, is comprised of such tables and data as would probably be of value to educators in planning a curriculum for nursing activities. The study came as an outgrowth of the projects outlined by the Five-Year Program of the Committee on the Grading of Nursing Schools.

J. O'BRIEN, R. N.

Nature's way: the fertile and sterile periods of marriage: By Victor C. Pedersen, A. M., M. D., F. A. C. S. New York, G. P. Putnam's Sons, 1934. pp. 81. Price, $1.00.

This is a brief but well documented volume explaining scientifically yet simply the newer concepts of the physiology of women. The important practical implications of the fertile and sterile periods of the menstrual cycle are discussed by the author and are revealed as the method of natural birth control. The author presents in detail the work of Knauss and Ogino and gives the methods of determining the periods of fertility and sterility. The superior advantages of nature's way are contrasted with contraceptives. The stand of the principal religions upon birth control and the fact that the natural method is unobjectionable and inoffensive forms the concluding portion of the book.

I. L. ROBBINS, M. D.

Wish-Hunting in the Unconscious: an analysis of psychoanalysis: By Milton Harrington, M. D. New York, Macmillan Co., 1934. pp. 189. Price, $2.50.

The author has here written a concise and trenchant indictment of psychoanalysis. His arguments are telling and the facts presented are most convincing. The reviewer is not yet prepared to accept a final judgment upon a subject that has gained so many powerful adherents and adversaries. He feels, however, that a lucid, logical, straightforward array of facts such as the author has given us in this book, by the authoritie pro and con, would soon make it possible to assign to psychoanalysis its true status. The theory and technique of psychoanalysis are described and the falaciousness and foolishness of much of this subject is soon apparent. Its practical value and its pòpular success are discussed in connection with the eternal hope of mankind to be free of his mental and bodily ailments. The author concludes his book with an alternative which he calls mechanistic psychology. The theory is interesting and bears the imprint of reasonableness.

I. L. ROBBINS, M. D.

Laboratory notebook method in teaching physical diagnosis and clinical history recording: By Logan Clendenning, M. D. St. Louis, C. V. Mosby Co. 1934. pp. 71 Price, 50 cents.

Case history and physical examination routines are here outlined along with fragmentary explanatory notes. The last part of the book is devoted to questions upon history taking and physical examination. It is a useful compend.

I. L. ROBBINS, M. D.

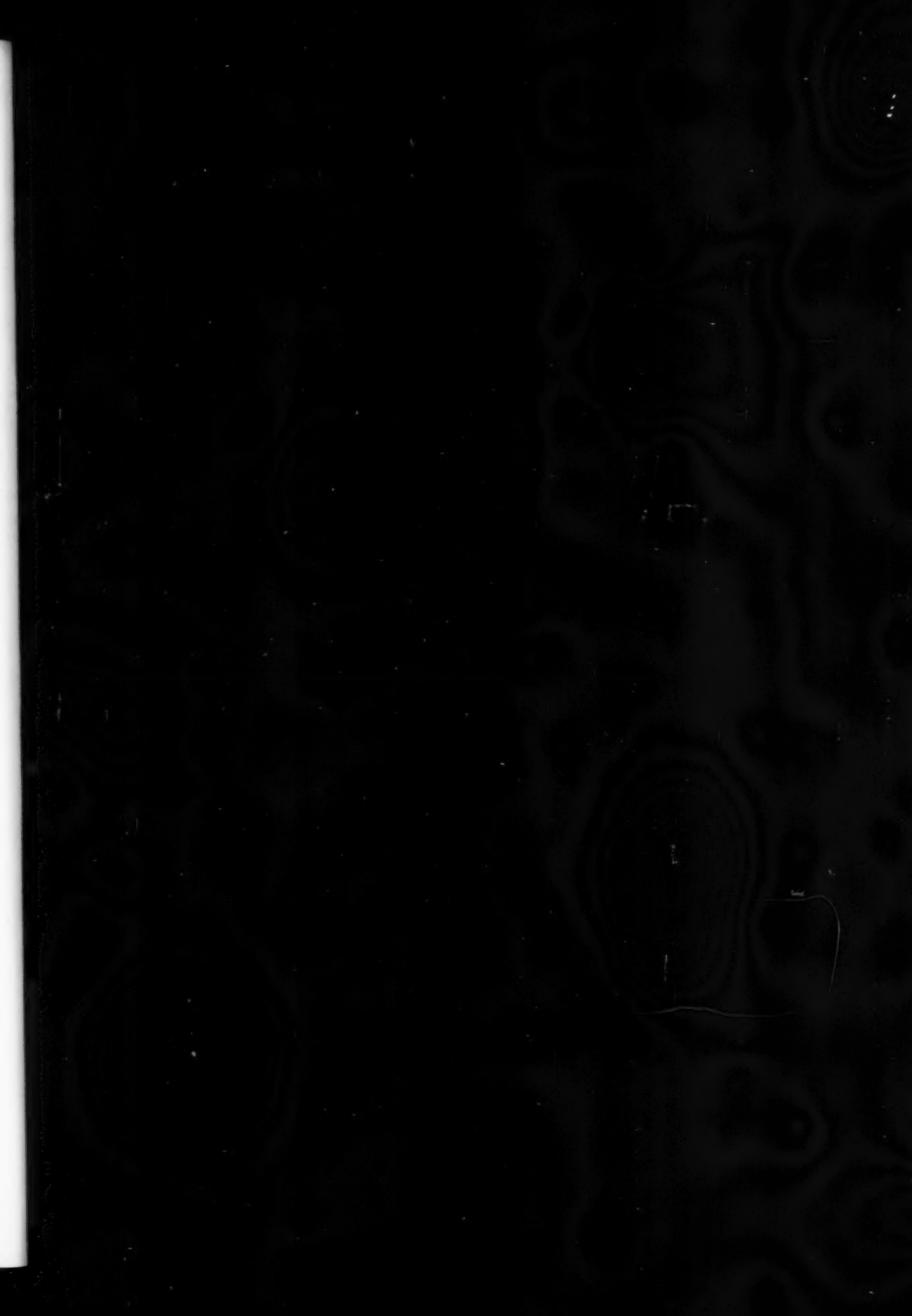
PUBLICATIONS RECEIVED

F. A. Davis Company, Philadelphia: Practical Surgery of the Abdominal and Pelvic Regions, by James William Kennedy, M. D., F. A. C. S. The Heart Visible, by J. Polevski, M. D. Clinical Laboratory Methods, by Pauline S. Dimmitt, Ph. G.

J. B. Lippincott Company, Philadelphia: Treatment by Diet, by Clifford J. Barborka, B. S., M. S., M. D., D. Sc., F. A. C. P.

Lea & Febiger, Philadelphia: Surgical Applied Anatomy, by Sir Frederick Treves, Bart.

Williams & Wilkins Company, Baltimore: The Principles of Therapeutics, by Francis Richard Fraser, M. A., M. D., F. R. C. P.

Dorrance & Company, Inc., Philadelphia: The Autonomic Diseases or the Rheumatic Syndrome, by T. M. Rivers, M. D.

Year Book Publishers, Inc., Chicago: The 1934 Year Book of General Medicine.